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EDUCATION

BS, Mechanical Engineering, National Technical University of Athens, 1995
MS, Engineering Mechanics, Virginia Tech, 1998
PhD, Engineering Mechanics, Virginia Tech, 2000

HONORS-AWARDS-RECOGNITION (PARTIAL LIST)

- 2019, Singh, et *al*, "Two regime cooling in flow induced by a spark discharge", *(Selected as Editors Suggestion, for particular interest, importance, and clarity by the editors and referees for Physical Review Fluids*
- 2019, Invited paper for journal of *Measurement Science and Technology* (MST): the 'Special Section on the 13th International Symposium on Particle Image Velocimetry (PIV 2019)', 'Assessment of Uncertainty Quantification methods for density estimation from Background Oriented Schlieren (BOS) measurements'
- 2018, Journal Annual Journal Highlights Meas Sci Technol. Meas Sci Technol IOP Publishing; "Sayantan Bhattacharya *et al* 2018 *Meas. Sci. Technol.* **29** 115301"**.**
- 2016, Journal cover Meas Sci Technol. Meas Sci Technol IOP Publishing; 2016 Sep 15;:1–11. "Jun, Brian; Giarra, Matthew; Yang, Haisheng; Main, Russell; Vlachos, Pavlos, Nanoparticle flow velocimetry with image phase correlation for confocal laser scanning microscopy"**.**
- 2015, Proceedings of the National Academy of Science, cover and journal highlight "Gart S, Socha JJ, Vlachos PP, Jung S. Dogs lap using acceleration-driven open pumping. Proceedings of the National Academy of Sciences of the United States of America. 2015 Dec 14; 201514842–5."
- 2015, University Faculty Fellow, Purdue University
- Solberg award citation for instruction, voted at the top 10 best instructors by the Purdue School of Mechanical Engineering undergraduate students. 2015, fall semester; 2016, spring semester
- 2014 Journal of Experimental Biology, Cover and journal highlight, "Holden D, Socha JJ, Cardwell ND, Vlachos PP. Aerodynamics of the flying snake Chrysopelea paradisi: how a bluff body cross-sectional shape contributes to gliding performance. 2014 Jan 29;217(3):382–94.
- 2013 Measurement Science and Technology, Journal Highlights, Raben, S.G., Charonko, JJ, Vlachos, P.P., "Adaptive Gappy Proper Orthogonal Decomposition (POD) for Particle Image Velocimetry (PIV) Data Reconstruction"

- Outstanding Paper Award, 2013 ASME Global Congress on Nano Engineering for Medicine and Biology, awarded for Cara Buchanan, Elizabeth Voigt, Christopher Szot, Pavlos Vlachos, and Marissa Rylander. Tissue-Engineered Tumor Microvessels to Study Shear Stress-Mediated Angiogenesis. Paper Number NEMB2013-93220. Proceedings of the 2013 ASME Global Congress on Nano Engineering for Medicine and Biology, February 4-6, 2013, Boston, MA, USA.
- 2012, Robert E. Hord Professor of Mechanical Engineering Dept. College of Engineering, Virginia Tech.
- 2010, John R. Jones Faculty Fellow, Mechanical Engineering Dept. College of Engineering, Virginia Tech.
- Moody Award ASME Division of Fluids Engineering 2011, most outstanding technical paper dealing with the practice of fluids engineering
- 2010 Outstanding Paper Award, Fluid Mechanics, journal of Measurement Science and Technology, Institute of Physics
- 2009 Outstanding Paper Award, Fluid Mechanics, journal of Measurement Science and Technology, Institute of Physics
- Dean's Award of Excellence in Research, Virginia Tech 2009-2010
- Virginia Tech Scholar of the Week, 2010.
- W. M Reed Lecture, University of Kentucky, April 2008
- Keynote speaker, Fluids Engineering Summer Meeting 2007, Forum on Fluid Measurement and Instrumentation
- College of Engineering Faculty Fellow Award 2007
- Moody Award ASME Division of Fluids Engineering 2007, most outstanding technical paper dealing with the practice of fluids engineering
- National Academy of Engineering 2006 Frontiers of Engineering Symposium.
  Nominated and selected attendee. One out of 81 attendees across the nation, across all areas of engineering and academia, government or industry.
  (Abstract from the news release *"…Frontiers of Engineering attendees — engineers 30 to 45 years of age and representing academia, industry and government — were nominated and selected in recognition of their contributions to the advancement of engineering and their potential as future leaders in their fields…"*
- NSF CAREER 06 Arterial Flow Dynamics: Effects of Pulsatility Compliance and Curvature
- MIT 2005 11th Annual T.F. Ogilvie Award, Young Investigator Lectureship in Ocean Engineering and Fluid Mechanics
- Dean's Award of Excellence for Outstanding Assistant Professor Virginia Tech 2004-2005
- Dean's List for Teaching Excellence, 2004, 2005
- Member of Hellenic Academia of Abroad (HELLADIA Organization) May 2000.
  Recognition to promising or established Greek scientists outside the Greek borders.

MEDIA MENTIONS (PARTIAL LIST)

- (across several outlets): Coalescence of oblique jets … Engineers Explain Physics of Fluids Some 100 Years After Discovery
- R&D Magazine (and many other outlets): How do animals drink … Nature's phenomena might teach engineers new tricks
- Related to our paper on flying snake gliding flight in the journal of Biomimetics & Bioispiration (Socha et al. 2010):

- Pentagon seeks flying snakes' secret. By Marc Kaufman, The Washington Post, November 22, 2010.
- Flying snakes' secret revealed. By Stephanie Pappas, Livescience.com, November 22, 2010. Also found at MSNBC.com and foxnews.com, among others.
- How snakes can fly. By Ker Than, National Geographic Daily News, November 23, 2010.
- Flying snakes, caught on tape. From the AIP press release (written by Kathy Svitil) on PhysOrg.com, November 23, 2010.
- Video reveals how a flying snake slithers through the air. By Jennifer Walsh, Discover magazine 80beats blog, November 23, 2010.
- NPR All Things Considered. Interview on NPR by Mary Louise Kelly, November 24, 2010.
- Sakes Alive! Snakes That Fly! By Mark Memmott, NPR "The Two-Way", November 24, 2010.
- Daily Planet television segment. November 24, 2010.
- Video: See snakes fly: Virginia Tech researchers are learning how the reptiles are able to glide so gracefully to the ground. By Jef Akst, The Scientist, November 24, 2010.
- Flying ophidians! Physicists uncover how snakes soar between trees. By Katherine Harmon, Scientific American online, November 24, 2010.
- Pentagon wants secret of flying snakes. By Lee Speigel, AolNews, November 24, 2010.
- it's a bird. It's a plane. No, it's a flying snake. By Sindya Bhanoo, The New York Times, November 29, 2010.
- Snakes with no #&%$$!! plane! CBC Radio program Quirks and Quarks with Bob McDonald, December 4, 2010.
- The Conversation: Flying snakes? ABC News Video, December 7, 2010.

- MultiSTEPS (Multi-Scale Transport in Environmental and Physiological Systems) NSF-IGERT program award news releases and announcements across multiple news outlets
- Feature at NPR "All things considered." and other radio stations for the work to fight cardiovascular disease.
- Featured in the Virginia Tech Research Magazine, Article titled: "Engineers seek to stem massive, deadly flow of heart disease", Aug. 2009
- Science360 featured the NSF EFRI award, "Complex Microsystem Networks Inspired by Internal Insect Physiology" Article titled: The Secrets of the Lowly Ground Beetle Could Lead to Better Tissue Engineering, Sept 2009.
- Featured in "NewScientistTech: *Underwater Weapons-the New Wave"* for research in future underwater weapons

PROFESSIONAL AND ACADEMIC APPOINTMENTS

PURDUE UNIVERSITY, WEST LAFAYETTE, IN, AUG. 2013-PRESENT

04/18- present : Presidents Fellow, Office of Vice President for Engagement, Partnerships and Research Purdue University
08/13- present : Professor, School of Mechanical Engineering Purdue University
08/13- present : Professor, School of Biomedical Engineering Purdue University (by courtesy)
2013- 2016 : Affiliate Professor, Mechanical Engineering Dept. Virginia Tech
2013- 2016 : Affiliate Professor, School of Biomedical Engineering and Sciences Virginia Tech
2006-2015 : Adjunct Faculty, Wake Forest School of Medicine
2004-2016 : Affiliate Faculty, Dept of Engineering Sciences and Mechanics, Virginia Tech

VIRGINIA TECH, BLACKSBURG, VA, 2000-2013

10/12-08/13 : Robert E. Hord Professor, Mechanical Engineering Dept. Virginia Tech
06/11-10/12 : Professor, John R. Jones Faculty Fellow, Mechanical Engineering Dept. Virginia Tech
06/07-06/11 : Associate Prof. Mechanical Engineering Dept. Virginia Tech
08/03-08/13 : Core Faculty, School of Biomedical Engineering and Sciences, Virginia Tech
08/03-06/07 : Assistant Prof. Mechanical Engineering Dept. Virginia Tech
01/01-08/03 : Aeroprobe Corp (Blacksburg, Va.) Senior Scientist. R&D (part time).
07/02-08/03 : Research Assistant Prof. Eng. Sc. and Mechanics Dept. Virginia Tech (part time)
09/00-07/02 : Visiting Assistant Prof. Eng. Sc. and Mechanics Dept. Virginia Tech (part time)

RESEARCH AND CREATIVE ACTIVITIES

SCHOLARLY ACTIVITIES SUMMARY

Peer Reviewed Journal Publications	121 (in addition 6 abstracts appeared in journals)
Peer Reviewed Conference Proceedings	and extended abstracts 271
(including refereed extended abstracts)	121 full papers + 150 extended and short abstracts

JOURNAL PAPERS

1. (*)Bhavini Singh, Lalit K. Rajendran, Pavlos P. Vlachos, Bane Sally, "Two regime cooling in flow induced by a spark discharge", *(Selected as Editors Suggestion, for particular interest, importance, and clarity),* **accepted, Physical Review Fluids (2019).**
2. Rajendran Lalit, Zhang Jiacheng, Bhattacharya Sayantan, Bane Sally, Vlachos, Pavlos, "Uncertainty quantification in density estimation from background oriented schlieren (BOS) measurements" **Measurement Science and Technology, (2019) https://doi.org/10.1088/1361-6501/ab60c8**
3. Zhang, Jiacheng ; Brindise, Melissa ; Rothenberger, Sean; Schnell, Susanne; Markl, Michael; Saloner, David; Rayz, Vitaliy; Vlachos, Pavlos, "4D Flow MRI Pressure Estimation Using Velocity Measurement-Error based Weighted Least-Squares", **IEEE, Transactions of Medical Imaging, (2019) DOI: 10.1109/TMI.2019.2954697**
4. Adib Ahmadzadegan, Shiyan Wang, Pavlos P. Vlachosand Arezoo M. Ardekani, "Hydrodynamic attraction of bacteria to liquid-liquid interfaces" **accepted, Physical Review E. (2019)**
5. Syed Harris Hassan, Tianqi Guo, and Pavlos P. Vlachos, "Flow field evolution and entrainment in a free surface plunging jet", **Physical Review Fluids, (2019), DOI: 10.1103/PhysRevFluids.4.104603**
6. (*)Rajendran, Lalit; Bane, Sally; Vlachos, Pavlos, "Dot tracking methodology for background-oriented schlieren (BOS)", **Experiments in Fluids, (2019) DOI: 10.1007/s00348-019-2793-3**
7. Melissa C. Brindise, Sean Rothenberger, Benjamin Dickerhoff, Susanne Schnell, Michael Markl, David Saloner, Vitaliy L. Rayz and Pavlos P. Vlachos, "Multi-modality cerebral aneurysm haemodynamic analysis: in vivo 4D flow MRI, in vitro volumetric particle velocimetry and in silico computational fluid dynamics" **Journal of the Royal Society Interface (2019) 20190465. 22 http://dx.doi.org/10.1098/rsif.2019.0465**
8. Sreyashi Chakraborty, Alican Ozkan, Marissa Nichole Rylander, Wendy A. Woodward, Pavlos Vlachos, "Mixture theory modeling for characterizing solute transport in breast tumor tissues"**, Journal of Biological Engineering, (2019) 13:46, https://doi.org/10.1186/s13036-019-0178-z**
9. Soroush Aramideh, Pavlos P. Vlachos, and Arezoo M. Ardekani, "Nanoparticle dispersion in porous media in viscoelastic polymer solutions", **Journal of Non-Newtonian Fluid Mechanics, (2019), https://doi.org/10.1016/j.jnnfm.2019.05.003**

10. Rajendran, Lalit; Bane, Sally; Vlachos, Pavlos, "PIV/BOS synthetic image generation in variable density environments for error analysis and experiment design" by **Measurement Science and Technology, 30 (2019) 085302 (9pp)**
11. Tianqi Guo, Arezoo M. Ardekani, and Pavlos P. Vlachos, "Microscale, scanning defocusing volumetric particle tracking velocimetry", **Experiments in Fluids, (2019) 60:89, https://doi.org/10.1007/s00348-019-2731-4**
12. Mira C, Weibel JA, Vlachos PP, Garimella SV. "Three-dimensional liquid-vapor interface reconstruction from high-speed stereo images during pool boiling", **International Journal of Heat and Mass Transfer, (2019) https://doi.org/10.1016/j.ijheatmasstransfer.2019.02.077**
13. Shingo Tsujinaga, Hiroyuki Iwano, Miwa Sarashina, Taichi Hayashi, Michito Murayama, Ayako Ichikawa, Masahiro Nakabachi, Hisao Nishino, Shinobu Yokoyama, Arata Fukushima, Takashi Yokota, Kazunori Okada, Sanae Kaga, Pavlos P. Vlachos, Toshihisa Anzai, "Diastolic Intra-Left Ventricular Pressure Difference During Exercise: Strong Determinant and Predictor of Exercise Capacity in Patients with Heart Failure", **Journal of Cardiac Failure, 2019, https://doi.org/10.1016/j.cardfail.2019.02.005.**
14. Singh B, Rajendran LK, Bane SPM, and Vlachos PP. "Measurement of the Flow Field Induced by a Spark Plasma Using Particle Image Velocimetry", **Experiments in Fluids, (2018) 59: 179. https://doi.org/10.1007/s00348-018-2632-y**
15. Brindise MC, Margaret M Busse, and Vlachos PP. "Density and Viscosity Matched Newtonian and non-Newtonian Blood-Analog Solutions with PDMS Refractive Index"**, Experiments in Fluids, (2018) 59: 173. https://doi.org/10.1007/s00348-018-2629-6**
16. Soroush Aramideh, Pavlos P. Vlachos, and Arezoo M. Ardekani, "Unstable displacement of Non-Aqueous Phase Liquids with surfactant and polymer", **(2018) 126: 455. https://doi.org/10.1007/s11242-018-1168-1, Transport in Porous Media.**
17. (*)Bhattacharya, Sayantan; Charonko, John; Vlachos, Pavlos "Particle Image Velocimetry (PIV) uncertainty quantification using moment of correlation (MC) plane" **Meas. Sci. Technol. Volume 29, Number 11, 2018**
18. Jun, B.H., Giarra, M. & Vlachos, P.P. "Multi-dimensional nanoparticle flow velocimetry using confocal laser scanning microscopy" **Microfluid Nanofluid (2018) 22: 89. https://doi-org.ezproxy.lib.purdue.edu/10.1007/s10404-018-2105-x**
19. Soroush Aramideh, Pavlos P. Vlachos, and Arezoo M. Ardekani, "Pore-scale statistics of flow and transport through porous media", **Physical Review E., (2018) DOI: https://doi.org/10.1103/PhysRevE.98.013104**
20. Louf, Jean-François, Chang, Brian, Eshraghi, Javad, Mituniewicz Austin, Vlachos, Pavlos, Jung, Sunghwan, "Cavity Ripple Dynamics after Pinch-Off", **Journal of Fluid Mechanics (2018) https://doi.org/10.1017/jfm.2018.459**
21. Soroush Aramideh, Rituraj Borgohain, Pratik Naik, Cliff T. Johnston, Pavlos P. Vlachos, Arezoo M. Ardekani, "Multi-objective history matching of surfactant-polymer flooding" ***Fuel*. 228, (2018), 418–428.**
22. Kurt Y Qing; Kelsey M Wasilczuk; Matthew P Ward; Evan H Phillips; Pavlos P Vlachos; Craig J Goergen; Pedro Irazoqui, "B Fibers Are the Best Predictors of Cardiac Activity during Vagus Nerve Stimulation", ***Bioelectronic Medicine*. 4, 1 (2018), 5**
23. Brindise MC and Vlachos PP. "Pulsatile pipe flow transition: flow waveform effects"**, Physics of Fluids 30, 015111 (2018);**
24. Arvin H. Soepriatna, Frederick W. Damen, Pavlos P. Vlachos, Craig J. Goergen, "Cardiac and Respiratory-Gated Volumetric Murine Ultrasound", **Int J Cardiovasc Imaging (2017). https://doi-org.ezproxy.lib.purdue.edu/10.1007/s10554-017-1283-z**
25. Meyers, Brett A., Craig J. Goergen, Pavlos P. Vlachos, "Development and Validation of a Phase-Filtered Moving Ensemble Correlation for Echocardiographic Particle Image Velocimetry", **Ultrasound in Medicine and Biology, (2017) Volume 44, Issue 2, 477–488**

26. Londono-Hoyos, Francisco J., Abigail Swillens, Joris Van Cauwenberge, Brett Meyers, Maheswara Reddy Koppula, Pavlos Vlachos, Julio A. Chirinos, and Patrick Segers. "Assessment of methodologies to calculate intraventricular pressure differences in computational models and patients." **Medical & Biological Engineering & Computing (2017): 1-13. doi: 10.1007/s11517-017-1704-0**
27. Shiyan Wang, Tianqi Guo, Sadegh Dabiri, PavlosP. Vlachos, and Arezoo Ardekani, "Effect of surfactant on bubble collisions on a free surface" **Physical Review Fluids DOI:https://doi-org.ezproxy.lib.purdue.edu/10.1103/PhysRevFluids.2.043601**
28. Brindise MC and Vlachos PP. "Proper Orthogonal Decomposition Truncation Method for Data Denoising and Order Reduction" **Experiments in Fluids, https://doi-org.ezproxy.lib.purdue.edu/10.1007/s00348-017-2320-3**
29. Tianqi Guo, Matthew Rau, Pavlos Vlachos, and Suresh Garimella, "Axisymmetric wall jet development in confined jet impingement" **Physics of Fluids 29, 025102 (2017); doi: http://dx.doi.org/10.1063/1.4975394**
30. Bhattacharya, Sayantan, Charonko, John and Vlachos, Pavlos "Stereo-particle image velocimetry uncertainty quantification" **Meas. Sci. Technol. 28 (2017) 015301 (17pp) doi:10.1088/1361-6501/28/1/015301**
31. (*)Jun, Brian; Giarra, Matthew; Yang, Haisheng; Main, Russell; Vlachos, Pavlos "Nanoparticle flow velocimetry with image phase correlation for confocal laser scanning microscopy" **Meas Sci Technol. Meas Sci Technol. IOP Publishing; 2016:1–11. (Journal cover)**
32. Bhattacharya S, Berdanier RA, Vlachos PP, Key NL. "A New Particle Image Velocimetry Technique for Turbomachinery Applications." **Journal of Turbomachinery. 2016;138(12):124501–4.**
33. Boomsma, Aaron; Bhattacharya, Sayantan; Troolin, Dan; Pothos, Stamatios; Vlachos, Pavlos "A comparative experimental evaluation of uncertainty estimation methods for two-component PIV" **Meas Sci Technol. IOP Publishing; 2016 Aug 1;:1–17.**
34. Brindise MC, Chiastra C, Burzotta F, Migliavacca F, Vlachos PP. "Hemodynamics of Stent Implantation Procedures in Coronary Bifurcations: An In Vitro Study." **Ann Biomed Eng. Springer US; 2016 Jul 26;:1–12.**
35. Kähler CJ, Astarita T, Vlachos PP, Sakakibara J, Hain R, Discetti S, et al. "Main results of the 4th International PIV Challenge." **Exp Fluids. 2016 May 21;:1–71.**
36. Iwano H, Kamimura D, Fox ER, Hall ME, Vlachos PP, Little WC. "Presence and Implication of Temporal Nonuniformity of Early Diastolic Left Ventricular Wall Expansion in Patients With Heart Failure." **J Card Fail. 2016 Apr 14.**
37. Rau MJ, Vlachos PP, Garimella SV. "A tomographic-PIV investigation of vapor-induced flow structures in confined jet impingement boiling." **International Journal of Multiphase Flow. Elsevier Ltd; 2016 2;84:1–12.**
38. Rau MJ, Guo T, Vlachos PP, Garimella SV. "Stereo-PIV measurements of vapor-induced flow modifications in confined jet impingement boiling." **International Journal of Multiphase Flow. Elsevier Ltd; 2016 1;84(C):19–33.**
39. Natalya Vorobtsova, Claudio Chiastra, Mark A. Stremler, David C. Sane, Francesco Migliavacca, and Pavlos Vlachos, "Effects of Vessel Tortuosity on Coronary Hemodynamics: An Idealized and Patient-Specific Computational Study" **DOI: 10.1007/s10439-015-1492-3 Annals of Biomedical Engineering, 2016**
40. (*)Gart S, Socha JJ, Vlachos PP, Jung S. "Dogs lap using acceleration-driven open pumping." **Proceedings of the National Academy of Sciences of the United States of America. 2015 Dec 14;:201514842–5. (Journal Cover)**
41. Raben JS, Hariharan P, Robinson R, Malinauskas R, Vlachos PP. "Time-Resolved Particle Image Velocimetry Measurements with Wall Shear Stress and Uncertainty Quantification for the FDA Nozzle Model." **Cardiovasc Eng Tech. Springer US; 2015 Dec 1;:1–16.**

42. Peng Zhang, Saikat Jana, Matthew Giarra, Pavlos Vlachos, and Sunghwan Jung, “Paramecia swimming in viscous” **DOI: 10.1140/epjst/e2015-50078-x European Physical Journal**
43. Sciacchitano, Andrea; Neal, Douglas; Smith, Barton; Warner, Scott; Vlachos, Pavlos; Wieneke, B; Scarano, Fulvio, "Collaborative framework for PIV uncertainty quantification: comparative assessment of methods" **Meas Sci Technol. 2015, doi:10.1088/0957-0233/26/7/074004**
44. Zhenyu Xue, John Charonko and Pavlos Vlachos, Particle image pattern mutual information and uncertainty estimation for particle image velocimetry, **Meas Sci Technol. 2015, doi:10.1088/0957-0233/26/7/074001**
45. Pentrizzetti G., Vlachos PP, Little WC, Gharib M, Sotiropoulos F, Kherdavar A, “On Proper Use of Fluid Dynamics Conservation Laws in Defining the Contribution of Diastolic Vortex Ring to Left Ventricular Filling”, **Journal of the American College of Cardiology, 2015:2570-7.**
46. Iwano H, Kamimura D, Fox E, Hall M, Vlachos PP, Little WC. “Altered Spatial Distribution of the Diastolic Left Ventricular Pressure Difference in Heart Failure.” **Journal of the American Society of Echocardiography; 2015 May 1;28(5):597–605.e1.**
47. Antoine EE, Vlachos PP, Rylander MN. “Tunable Collagen I Hydrogels for Engineered Physiological Tissue Micro-Environments.” **PLoS ONE. 2015 Mar 30;10(3):e0122500–18.**
48. Giarra M, Charonko J, Vlachos P. “Measurement of fluid rotation, dilation, and displacement in particle image velocimetry using a Fourier–Mellin cross-correlation”. **Meas Sci Technol.; 2015 Feb 4; 1–11, doi:10.1088/0957-0233/26/3/035301 .**
49. Passipularides A. Vlachos PP, Little WC, “vortex formation time is not an index of ventricular function” **Journal of Cardiovascular Translational Research, Jan 2015, DOI 10.1007/s12265-015-9607-7.**
50. Vlachos PP, Niebel CL, Chakraborty S, Pu M, Little WC. Calculating Intraventricular Pressure Difference Using a Multi-Beat Spatiotemporal Reconstruction of Color M-Mode Echocardiography. **Ann Biomed Eng. 2014 Sep 17.**
51. Xue Z, Charonko JJ, Vlachos PP. Particle image velocimetry correlation signal-to-noise ratio metrics and measurement uncertainty quantification. **Meas Sci Technol. 2014 Sep 22;25(11):115301.**
52. Raben SG, Ross S, Vlachos PP, “Experimental Determination of Three Dimensional Finite Time Lyapunov Exponents in Multi-Component Flows”, **Exp Fluids. doi: 10.1007/s00348-014-1824-3**
53. Buchanan Cara F., Scott S. Verbridge, Pavlos P. Vlachos, Marissa Nichole Rylander, “Flow Shear Stress Regulates Endothelial Barrier Function and Expression of Angiogenic Factors in a 3D Microfluidic Tumor Vascular Model”, **Journal of Cell Adhesion and Migration Sept 2014, DOI: 10.4161/19336918.2014.970001.**
54. Raben Jaime S., Stefano Morlacchi, Francesco Burzotta, Francesco Migliavacca and Pavlos P. Vlachos, “Local blood flow patterns in stented coronary bifurcations: an experimental and numerical study” **Journal of Applied Biomaterials & Functional Materials DOI:10.5301/jabfm.5000217**
55. Iwano Hiroyuki, Min Pu, Bharathi Upadhya, Brett Meyers, Pavlos P. Vlachos, and William Little “Delay of left ventricular longitudinal expansion with diastolic dysfunction: Impact on load dependence of e′ and longitudinal strain rate”, **Physiological Reports, 2(7) 2014 e12082, doi: 10.14814/phys2.12082**
56. Antoine E, Vlachos PP, Rylander NM, “Review of Collagen I Hydrogels for Bioengineered Tissue Microenvironments: Characterization of Mechanics, Structure, and Transport”**, Tissue Engineering doi:10.1089/ten.TEB.2014.0086.**
57. Villanueva A. Vlachos PP, Priya S, “Flexible margin kinematics and vortex formation of Aurelia aurita and Robojelly” **PLoS ONE. 2014 Jun 6;9(6):e98310.**
58. Jafari, Farid, Ross S, Vlachos PP and Socha JJ, "A theoretical analysis of pitch stability during gliding in flying snakes." **Bioinspiration & Biomimetics 9.2 (2014): 025014.**

59. Krishnan A, Socha JJ, Vlachos PP, Barba LA. “Lift and wakes of flying snakes.” **Phys. Fluids 26 , 031901 (2014)**
60. Charonko JJ, Antoine E, Vlachos PP. “Multispectral processing for color particle image velocimetry.” **Microfluid Nanofluid. 2014 Feb 7.**
61. (*)Holden D, Socha JJ, Cardwell ND, Vlachos PP. “Aerodynamics of the flying snake Chrysopelea paradisi: how a bluff body cross-sectional shape contributes to gliding performance.” **Journal of Experimental Biology. 2014 Feb 1;217(Pt 3):382–94.**
62. Raben SG, Ross S, Vlachos PP “Computation of Finite Time Lyapunov Exponents from Time Resolved Particle Image Velocimetry Data”, **Exp Fluids. 2013 Dec 7;55(1):1638.**
63. Voigt E., Buchanan C., Fezzaa K, Lee WK, Rylander MN, Vlachos PP “Flow Measurements in a Blood-Perfused Collagen Vessel using X-Ray Micro-Particle Image Velocimetry” **PLoS ONE. 2013 Nov 18;8(11):e81198.**
64. **A** Rouhi, U. Piomelli, and P. Vlachos, “Numerical investigation of pulsatile flow in endovascular stents” **Physics of Fluids, Vol.25, Issue 9, doi: 10.1063/1.4821618**
65. Buchanan C., Voigt E., Szots C. Freeman J, Rylander MN, Vlachos PP, “3D Microfluidic Collagen Hydrogels for Investigating Flow-Mediated Tumor-Endothelial Signaling and Vascular Organization", **Tissue Engineering Part C: Methods. 2013 Jul 12:130712063340000.**
66. John J. Charonko and Pavlos P. Vlachos, “Estimation of uncertainty bounds for individual PIV measurements from cross correlation peak-ratio”, **Measurement Science and Technology 2013 Apr 26; 24(6):065301.**
67. Navish Wadhwa, Pavlos P. Vlachos, and Sunghwan Jung, “Noncoalescence in the Oblique Collision of Fluid Jets” **Physical Review Letters 110(12):124502.**
68. Charonko J. John, Stewart C. Kelley, Kumar Rahul, Vlachos P. Pavlos, Little C. William, “The Role of Vortex Formation in Left Ventricular Filling” **Annals of Biomedical Engineering Springer; 2013;:1–13.**
69. David Hubble, Thomas E. Diller, and Pavlos P. Vlachos, “The Vortex Induced Mechanism of Heat Transfer Augmentation” **Journal of Fluid Mechanics 2013 Feb 8;718:89–115.**
70. Shuyan Xiao, John J. Charonko, Xiangping Fu, Alireza Salmanzadeh-Dozdabi, Rafael V. Davalos, Pavlos P. Vlachos, Carla V. Finkielstein and Daniel G. S. Capelluto, “Structure, Sulfatide-binding Properties, and Inhibition of Platelet Aggregation by a Disabled-2-derived Peptide”**, Journal of Biological Chemistry ASBMB; 2012;287(45):37691–702.**
71. Stewart C. Kelley, Charonko J. John, Kumar Rahul, Little C. William, Vlachos P. Pavlos, “Left ventricle filling vortex formation is unaffected by diastolic impairment” **Journal of the American Physiology Society – Heart and Circulation 2012;303(10):H1255–62.**
72. Jaime S. Raben, Steven A. Klein, Jonathan D. Posner, Pavlos P. Vlachos, “Improved accuracy of time-resolved micro Particle Image Velocimetry using phase-correlation and confocal microscopy” ***Microfluidics and Nanofluidics*. doi:10.1007/s10404-012-1062-z**
73. Chris Weiland and Pavlos P. Vlachos, “Round Gas Jets Submerged In Water” ***International Journal of Multiphase Flow*. doi:10.1016/j.ijmultiphaseflow.2012.08.002**
74. Takahiro Ohara, MD, PhD, Cassie L. Niebel, BS, Kelley C. Stewart, PhD, John J. Charonko, PhD, Min Pu, MD, PhD, Pavlos P. Vlachos, PhD, William C. Little, MD, FACC, “Loss of Adrenergic Augmentation of Diastolic Intra-Left Ventricular Pressure Difference in Patients with Diastolic Dysfunction Evaluated by Color M-Mode Echocardiography” ***JACC. Cardiovascular Imaging, 5*(9), 861–870. doi:10.1016/j.jcmg.2012.05.013**
75. Manteghi, M., Cooper, D. B., and Pavlos P. Vlachos. “Application of singularity expansion method for monitoring the deployment of arterial stents”. **Microwave and Optical Technology Letters, 54(10), 2241–2246. doi:10.1002/mop.27053**
76. Stewart KC, Vlachos PP, “Vortex Rings In Radially Confined Domains”, **Experiments in Fluids, doi: 10.1007/s00348-012-1343-z**
77. B. H. Timmins, B. L. Smith, and Pavlos P. Vlachos, "Automatic Particle Image Velocimetry Uncertainty Quantification," **Experiments in Fluids doi:10.1007/s00348-012-1341-1**

78. Stewart KC, Niebel C, Jung S and Vlachos PP, "The decay of confined vortex rings", **Experiments in Fluids, doi:10.1007/s00348-012-1277-5**
79. (*)Raben, S.G., Charonko, JJ, Vlachos, P.P., "Adaptive Gappy Proper Orthogonal Decomposition (POD) for Particle Image Velocimetry (PIV) Data Reconstruction", **Measurement Science and Technology, 23(2), 025303. doi:10.1088/0957-0233/23/2/025303**
80. Williams A and Vlachos P.P. "Dispersion Characteristics of Ferrofluid Aggregates" **Physics of Fluids, 23(12), 127102. doi:10.1063/1.3670012**
81. Voigt E., Buchanan C., Rylander MN, Vlachos PP, "Hydrodynamic Characterization of an Arterial Flow Bioreactor", **Cardiovascular Engineering and Technology. doi:10.1007/s13239-011-0076-0**
82. Cooper D, Roan MJ and Vlachos PP, "Acoustic Source Separation for Detection of Coronary Artery Sounds", **vol/issue 130/6 Journal of the Acoustic Society of America, id: 034112jas**
83. Weiland CJ and Vlachos PP, "Observations of a Critical Growth Time Scale for Partial and Supercavitation Development over Impulsively Translating Projectiles" **International Journal of Multiphase Flow, 38(1), 73–86. doi:10.1016/j.ijmultiphaseflow.2011.08.012**
84. Cardwell N, Vlachos PP, and Thole KA, "Multi-parametric particle tracking for multi-phase flows", **Measurement Science and Technology, 22 () 105406 (17pp).**
85. Welsh JD, Charonko JJ, Salmanzadeh A, Drahos KE, Shafiee H, Stremler MA, Davalos RV, Capelluto DGS, Vlachos PP, and Finkielstein CV, "Disabled-2 Modulates Homotypic and Heterotypic Platelet Interactions by Binding to Sulfatides" **British Journal of Haematology, DOI: 10.1111/j.1365-2141.2011.08705.x**
86. Kumar R, Charonko JJ, Hundley WG, Hamilton CA, Stewart KC, McNeal GR, Vlachos PP, Little WC., "Assessment of Left Ventricular Diastolic Function Using Four-Dimensional Phase Contrast Cardiac Magnetic Resonance" **Journal of Computer Assisted Tomography Volume: 35 Issue: 1 Pages: 108-112 Published: JAN-FEB 2011**
87. Stewart KC, Charonko JJ, Kumar R, Vlachos PP, Little WC, "New Method of Evaluating Left Ventricular Diastolic Function from Color M-mode Echocardiography". **Journal of the American College of Cardiology: Imaging Vol. 4, Issue 1, January 2011, Pages 37-46**
88. Selvarasu NKC, Tafti DK, and Vlachos PP, "Hydrodynamic Effects of Compliance Mismatch in Stented Arteries" **ASME Journal of Biomechanical Engineering, doi:10.1115/1.4003319**
89. Cardwell N, Vlachos PP, and Thole KA, "A Method for Identifying and Visualizing Foreign Particle Motion Using Time Resolved Particle Tracking Velocimetry," **Journal of Turbomachinery T-ASME, doi: 10.1115/1.4001187**
90. Gifford AR, Diller TE, and Vlachos PP, "The Physical Mechanism of Heat Transfer Augmentation in Stagnating Flows Subject to Freestream Turbulence" **ASME Journal of Heat Transfer, doi: 10.1115/1.4002595**
91. Cardwell N, Vlachos PP, and Thole KA, "Developing and Fully Developed Turbulent Flow in Ribbed Channels", **Experiments in Fluids, doi: 10.1007/s00348-010-0993-y**
92. Socha JJ, Miklasz K, Jafari F and Vlachos PP., "Non-equilibrium trajectory dynamics and the kinematics of gliding in a flying snake" **IOP Bioispiration & Biomimetics, doi: 10.1088/1748-3182/5/4/045002,**
93. Do H, Brady MR, Vlachos PP, Telionis PP and Yoon RH, "Numerical Modeling and Experiments of Coarsening Foam" **International Journal of Minerals Processing doi: 10.1016/ j.minpro.2010.10.008**
94. Ewing J, Gifford AR, Hubble D, Vlachos PP, Wicks A, Diller TE, "A Direct Heat-Flux Measurement Thin-Film Sensor Array" **Measurement Science & Technology 21 105201 doi: 10.1088/0957-0233/21/10/105201**
95. Charonko JJ, King C, Smith B, Vlachos PP, "Assessment of Pressure Field Calculations from Spatiotemporally Resolved Particle Image Velocimetry Velocity Fields", **Measurement Science & Technology, 21 105401 doi: 10.1088/0957-0233/21/10/105401**

96. Weiland CJ and Vlachos PP and Yagla JJ, "Concept Analysis and Laboratory Observations on a Water Piercing Missile Launcher" **Ocean Engineering dx.doi.org/10.1016/j.oceaneng.2010.03.009**
97. Karri SP and Vlachos PP, "Time-Resolved DPIV Investigation of Pulsatile Flow in Symmetric Stenotic Arteries - Effects of Impedance Phase Angle" **Journal of Biomechanical Engineering T-ASME 132, 031010 (2010)**
98. Charonko JJ, Karri S, Schmieg J, Prabhu S, and Vlachos PP, "In-Vitro, Time-Resolved PIV Comparison Of The Effect Of Stent Configuration", **Annals of Biomedical Engineering Volume 38, Issue 3 (2010), p. 889**
99. Brady MR, Raben SG, and Vlachos PP, "Methods for Particle Image Sizing (DPIS)" **Journal of Flow Measurement and Instrumentation 20(6), 2009**
100. Weiland CJ, and Vlachos PP, "A mechanism for mitigation of blade-vortex interaction using leading edge blowing flow control". **Experiments in Fluids, 2009. 47(3): p. 411-426.**
101. Williams AM, Griffiths D. and Vlachos PP, "Laminar Mixing using Oscillating Cantilevered Ionic Polymer Actuators" **Sensors and Actuators A-Physical, 2009. 153(1): p. 105-113**
102. Eckstein AC and Vlachos PP, "Assessment of Advanced Windowing Techniques for Digital Particle Image Velocimetry (DPIV)" **Measurement Science & Technology 2009. 20(7)**
103. Charonko JJ, Karri S, Schmieg J, Prabhu S, and Vlachos PP, "In-Vitro, Time-Resolved PIV Comparison Of The Effect Of Stent Design On WSS" **Annals of Biomedical Engineering, 2009. 37(7): p. 1310-1321**.
104. Lee WH, Kang S, Vlachos PP, Lee YW, "A novel in vitro ischemia/reperfusion injury model" **Archives of Pharmacal Research, 2009. 32(3): p. 421-429.**
105. Eckstein AC and Vlachos PP, "DPIV Robust Phase Correlation" **Measurement Science & Technology, 2009. 20(5): p. 055401**
106. Charonko JJ, Ragab SA and Vlachos PP "A scaling parameter for predicting pressure wave reflection in stented arteries" **ASME Journal of Medical Devices, 2009. 3(1): p. 011006.**
107. Karri SP, Charonko JJ and Vlachos PP, "Improvements in wall gradient estimation for Particle Image Velocimetry (PIV) measured velocity fields using radial basis functions and Proper Orthogonal Decomposition (POD)" **Measurement Science & Technology, 2009. 20(4)**
108. Eckstein AC, Charonko JJ and Vlachos PP, "Phase correlation processing for DPIV measurements" **Experiments in Fluids, Volume 45, Issue 3, pp.485-500**
109. Vlachos PP, and Telionis DP, "The Effect Of Free Surface On The Vortex Shedding From Inclined Circular Cylinders", **Journal of Fluids Engineering T-ASME – Vol. 130, Issue 2, 021103**
110. Grant EJ, Jones J, and Vlachos PP, "Design and Wind Tunnel Performance Testing of a New Omni-directional Roof Vent" **ASCE Journal of Architectural Engineering Vol. 13, Issue 1, pp. 18-21**
111. Harpold AA, Mostaghimi S, Vlachos PP, Brannan K, Dillaha T, "Stream discharge measurement using a large-scale particle image velocimetry (LSPIV) prototype". **Transactions of the ASABE v49 (6), pages 1791-1805**
112. Rullan J, Vlachos PP, Telionis DP, and Zeiger MD, "Post-Stall Flow Control of Sharp-Edged Wings via Unsteady Blowing" **AIAA Journal of Aircraft vol 43 no 6 pp 1738-1746**
113. Brady MR, Telionis DP, Vlachos PP. and Yoon RH "Evaluation of multiphase flotation models in grid turbulence via Particle Image Velocimetry." **International Journal of Mineral Processing 80(2-4): 133-143**
114. Pierrakos O, and Vlachos PP, " "On the Effect of Vortex Formation in Left Ventricular Flows" **Journal of Biomechanical Engineering, T-ASME August 2006, Volume 128, Issue 4, pp. 527-539**
115. Etebari, A and Vlachos, P (2005). "Improvements on the accuracy of derivative estimation from DPIV velocity measurements." **Experiments in Fluids, Vol. 39, N. 4.**

116. Miranda S, Vlachos PP, Telionis DP, and Zeiger MD, " Flow Control of a Sharp-Edged Airfoil", **AIAA Journal 2005 0001-1452 vol.43 no.4 (716-726)**
117. Klute SM, Vlachos PP, and Telionis DP, "A High-Speed DPIV Study of the Unsteady Characteristics of Vortex Breakdown", **AIAA Journal 2005 0001-1452 vol.43 no.3 (642-650)**
118. Pierrakos O, Vlachos PP, and Telionis DP "Vorticity and Turbulence Characteristics Inside a Transparent Flexible Left Ventricle via Digital Particle Image Velocimetry" **Journal of Biomechanical Engineering. T-ASME Vol 126, 6, pp. 714-726**, (2004)
119. Zeiger, MD, Telionis, DP, Vlachos, PP, "Unsteady Separated Flows Over 3-D Slender Bodies," **Journal of Progress in Aerospace Sciences 40, 291-320**, (2004).
120. Yazdani SK, Moore JE, Berry JL, and Vlachos PP, DPIV Measurements of Flow Disturbances in Stented Artery Models: Adverse affects of Compliance Mismatch, **Journal of Biomechanical Engineering. T-ASME Volume 126, Issue 5, pp. 559-566**, (2004).
121. Vlachos PP and Hajj MR, "A Time-Resolved DPIV Study Of The Unsteady Character Of The Flow Over A Surface Mounted Prism" **Journal of Wind Engineering and Industrial Aerodynamics. (vol 90 pp 543-553)**

PATENTS INTELLECTUAL PROPERTIES AND SOFTWARE RELEASED

PATENTS

1) Video processing method for analyzing transformation in objects, US Utility Patent, 62/774,040
2) Method of processing image, US Utility Patent, 62/640,849
3) Method of processing image, Copyright, 1-6364800131
4) "A Launcher for Cavitating Weapons" VTIP# 06.100- WIPO Pub. No.: WO/2008/105930 International Application No.: PCT/US2007/078504 Publication Date: 04.09.2008
5) (*) "A 360-degree roof membrane pressure equalizer" Development of an Omni-Directional Roof-Vent for wind hazard mitigation (VTIP 03.050). US Patent # 7,001,266.
6) (*) Rooftop vent for reducing pressure under a membrane roof, US Patent # 7,607,974 B2

*Now commercialized under the trade name V2T Vent ™ by Acrylife (http://sites.google.com/site/v2tventurivent/)

INTELLECTUAL PROPERTY DISCLOSURES

1) Rose Bengal Labeled Proteins for Assessment of Protein Distribution after Subcutaneous Injection 2020-SOLO-68883
2) Design Considerations for Low-Fill Eli-Lilly Irma Autoinjectors 2020-VLAC-68782
3) Procedures for Testing Drug Delivery Auto-injectors 2020-VLAC-68783
4) A Method for Automatic Echocardiogram Segmentation 2020-VLAC-68780
5) A Method for Direct Estimation of Heart Mechanics from Echocardiograms 2020-VLAC-68781
6) Non-slip Tip Surface for Geometrically Controlled mAb Injection into SQ in vitro Tissue Environment (SITE) 2020-LADI-68736
7) Thermally Activated Ultrasound Contrast Agents 2019-SOLO-68683
8) Simulated Subcutaneous (SQ) Environments for Ranking Monoclonal Antibody Formulations 2019-LADI-68531
9) Method for optical detection of neurological alterations, 2019-VLAC-68416

10) Microgel Device for Geometric Simulation of SQ Environment, 2019-LADI-68373
11) Uncertainty Quantification in Volumetric Particle Tracking Velocimetry (PTV), 2019-VLAC-68470
12) Stereo-Particle Image Velocimetry Uncertainty Quantification, 2017-VLAC-67630
13) Method for Reconstructing Two Component Velocity Fields from Ultrasound Color Doppler Scans. 2017-SCAL-67985
14) Passive Implant Embedded Sensing for Arterial Disease VTIP#08-112
15) Weapon Assisted Free Surface Penetration (WASP) VTIP#08-107
16) Color M-Mode Echocardiogram Propagation Velocity and Pressure Analysis Algorithm VTIP#08-099
17) Phase Correlation Algorithms for DPIV Estimation, (copyright) VTIP#08-042
18) A Hydrodynamic Efficiency as a Diagnostic Tool for Cardiac Health VTIP#07-087
19) A Novel Nafion Polymer Mixer for Laminar Flows" VTIP # 06.101
20) "A flush-mounted wall shear sensor based on ionomeric polymers" patent (Licensed to Discover Technologies). VTIP 06.101
21) "A Launcher for Cavitating Weapons" VTIP# 06.100- Provisional patent filled "A flush-mounted wall shear sensor based on ionomeric polymers" VTIP#05.082
22) "Rooftop Vent for Reducing Pressure Under a Membrane Roof" VTIP#05.038
23) "A 360-degree roof membrane pressure equalizer" Development of an Omni-Directional Roof-Vent for wind hazard mitigation VTIP#03.050.
24) "Active Skin for Turbulent Drag Reduction", Development of a novel actuator for active turbulent boundary-layer control (NASA Invention Disclosure, LAR16742-1)

SOFTWARE

25) Flow Image Quantification (FlowIQ): a comprehensive flow analysis tools for quantification of flow properties using imaging and optical diagnostics principles.
26) PIV Research and Analysis (PRANA) Matlab Toolbox: A comprehensive and state-of-the-art Particle Image Velocimetry (PIV) Matlab Toolbox, distributed as open source and aimed to support current and further research in the area of particle velocimetry. ***Over 1000 downloads to date***

PAPERS IN REFERRED CONFERENCE PROCEEDINGS

1. Lalit K. Rajendran, Bhavini Singh, Ravichandra Jagannath, George N. Schmidt, Pavlos P. Vlachos and Sally P.M. Bane, Experimental Characterization of Flow Induced by a Nanosecond Filamentary Surface Plasma Discharge, In 2020 AIAA Aerospace Sciences Meeting.
2. Singh, B., Rajendran, L. K., Vlachos, P. & Bane, S. P. M. (2019). Study of cooling and the effect of energy deposited in a single nanosecond spark plasma discharge using simultaneous 50 kHz PIV and BOS. In 2020 AIAA Aerospace Sciences Meeting.
3. Singh, B., Rajendran, L. K., Gupta, P., Scalo, C., Vlachos, P. & Bane, S. P. M. (2019). Experimental and Numerical Study of Flow Induced by Nanosecond Repetitively Pulsed Discharges. In 2019 AIAA Aerospace Sciences Meeting (p. 0740).
4. Rajendran LK, Bane SPM, Vlachos PP (2018) Dot tracking and cramer-rao lower bound for background oriented schlieren (bos) measurements. 19th Int. Symp. Appl. Laser and Imaging Techn. to Fluid Mech. in Lisbon.
5. Singh, B., Rajendran, L. K., Bane, S. P. M., & Vlachos, P. (2018). Characterization of Fluid Motion Induced by Nanosecond Spark Plasmas: Using Particle Image Velocimetry and Background Oriented Schlieren. In 2018 AIAA Aerospace Sciences Meeting (p. 0680).
6. Rajendran, Lalit K., et al. "PIV/BOS Synthetic Image Generation in Variable Density Environments for Error Analysis and Experiment Design." 55th AIAA Aerospace Sciences Meeting. 2017.

7. M.N. Giarra, P. P. Vlachos, J. J. Socha "High Speed Flow Measurements in the Beating Hearts of Living Insects" 18th Int Symp on Applications of Laser Techniques to Fluid Mechanics, Lisbon, Portugal, 8 July, 20016
8. Pothos S, Boomsma A, Troolin D, Bhattacharya S, Vlachos P. PIV Uncertainty: Computational and Experimental Evaluation of the Peak Ratio Method. ASME. Fluids Engineering Division Summer Meeting, Volume 2, Fora: Advances in Fluids Engineering Education; Cavitation and Multiphase Flow; Fluid Measurements and Instrumentation ():V002T10A005. doi:10.1115/FEDSM2016-7926.
9. Jung, S., et al. "A real lapping matter: the difference between dogs and cats when drinking." INTEGRATIVE AND COMPARATIVE BIOLOGY 56 (2016): E104-E104.
10. Soepriatna, Arvin H., Pavlos P. Vlachos, and Craig J. Goergen. "Cardiac and Respiratory-Gated Aortic Valve Ultrasound Imaging in Mice." CARDIOLOGY 134.2 (2016): 264-265.
11. Singh B, Rajendran LK, Bane SPM, Vlachos P. "Fluid motion induced by spark plasma: development of particle image velocimetry measurements." 54th AIAA Aerospace Sciences Meeting, AIAA Paper 2016-1214.
12. B. Jun, H. Yang, R. Main and P. Vlachos "Confocal laser scanning microscopy image correlation for nanoparticle flow velocimetry", 11th International Symposium on Particle Image VelocimetrySeptember 14-16, 2015 in Santa Barbara, CA USA
13. Boomsma, S. Bhattacharya, D. Troolin, P. Vlachos and S. Pothos "PIV Uncertainty: Computational and Experimental Evaluation of Uncertainty Methods", 11th International Symposium on Particle Image Velocimetry September 14-16, 2015 in Santa Barbara, CA USA.
14. M. J. Rau, T. Guo, P. P. Vlachos, and S. V. Garimella, "Visualization of Confined Jet Impingement with Boiling using Time-Resolved Stereo-PIV," International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems (InterPACK) and International Conference on Nanochannels, Microchannels and Minichannels (ICNMM), San Francisco, CA, July 6-9, 2015.
15. Sciacchitano, D. Neal, B. Smith, S. Warner, P. Vlachos, B. Wieneke, F. Scarano, "Collaborative framework for PIV uncertainty quantification: comparative assessment of methods" 2014 Symposioum on Applications of Laser Techniques to Fluid Mechanics, July 2014.
16. J. J. Charonko, S. Bhattacharya, Z. Xue, P. P. Vlachos, "Direct Estimation of PIV Uncertainty from Correlation Plane Analysis", 2014 Symposioum on Applications of Laser Techniques to Fluid Mechanics, July 2014
17. Meyers, B., Charonko, J., Pu, M., Little, W., & Vlachos, P. (2013). Robust clinical cardiac Echo Particle Image Velocimetry (EchoPIV), in PIV13; 10th International Symposium on Particle Image Velocimetry, July 1-3, 2013, Delft, The Netherlands.
18. La Foy, Roderick, and Pavlos Vlachos. "Multi-camera Plenoptic Particle Image Velocimetry." 10th International Symposium on Particle Image Velocimetry (PIV13), Delft, The Netherlands, July 2013.
19. Xue, Z., Charonko, J.J., & Vlachos, P.P. (2013). Signal-to-noise ratio, error and uncertainty of PIV measurement. 10th International Symposium on Particle Image Velocimetry (PIV13), Delft, The Netherlands, July 2013.
20. John Charonko, Elizabeth Voigt, Pavlos Vlachos. "Particle image velocimetry from multispectral data." 10th International Symposium on Particle Image Velocimetry (PIV13), Delft, The Netherlands, July 2013.
21. Dellinger, SB, Vlachos PP, De Vita, R, & Socha, JJ (2011). When gliding is a stretch: An investigation of material properties of `flying' snake skin. Integrative and Comparative Biology, {51}({Suppl. 1}), {E32}.
22. Socha, JJ, Jafari, F, & Vlachos, PP (2011). Challenges of being a snake glider. Integrative and Comparative Biology, {51}({Suppl. 1}), {E129}.
23. Kumar R, Stewart KC, Charonko JJ, Vlachos PP and Little WC, "Diastolic Intraventricular Pressure Gradients Assessed by Color M-Mode Echocardiography" CIRCULATION Volume: 118

Issue: 18 Pages: S602-S602 Supplement: Suppl. 2 Published: OCT 28 2008 (abstract selected from the 81st Annual Scientific Session of the American-Heart-Association, NOV 08-12, 2008 New Orleans, LA

24. Kang S, Lee WH, Hirani A, Vlachos PP, Lee YW "A multi layer design of parallel-plate flow chamber for studies of enclothelial cell response to fluid shear stress" FASEB JOURNAL 21 (5): A484-A484 APR 2007 (abstract selected from the corresponding society meeting is published in the journal

25. Lee WH, Kang SK, Hirani A, Vlachos PP, Lee YW "Biomedical research applications of a novel double-layer parallel-plate flow chamber" FASEB JOURNAL 21 (6): A1219-A1219 APR 2007 (abstract selected from the corresponding society meeting is published in the journal)

26. Yong Woo Lee, Pavlos P. Vlachos, Sung Yong Eum, Michal Toborek, "Interleukin-4 induces E-selectin expression in human vascular endothelial cells" The FASEB Journal Volume 19, Number 4, pp A696 (abstract selected from the corresponding society meeting is published in the journal)

27. La Foy, Roderick, and Pavlos Vlachos. "Error Analysis of the MLOS Tomographic Reconstruction Technique." Ninth International Symposium on Particle Image Velocimetry (2011).

28. Nicholas D. Cardwell and Pavlos P. Vlachos, "A multi-parametric particle pairing algorithm for particle tracking velocimetry in single and multiphase flows" ASME-JSME-KSME Joint Fluids Engineering Conference 2011, July 24-29, 2011, Hamamatsu, Shizuoka, JAPAN, AJK2011-31023

29. Brady Drew, John Charonko, Pavlos Vlachos, "Liquid entrainment by round turbulent gas jets submerged in water" ASME-JSME-KSME Joint Fluids Engineering Conference 2011, July 24-29, 2011, Hamamatsu, Shizuoka, JAPAN, AJK2011-11015

30. Ben Timmins, Barton Smith, Pavlos Vlachos, "Automatic Particle Image Velocimetry Uncertainty Estimation" FEDSM-ICNMM2010-30724, Aug 1-5 Montreal Canada.

31. Chris Weiland, Pavlos P. Vlachos, The Penetration Of Submerged Round Turbulent Gas Jets In Water, FEDSM-ICNMM2010-31029, Aug 1-5 Montreal Canada.

32. Chris Weiland, Pavlos P. Vlachos, "The Penetration Of Submerged Rectangular Turbulent Gas Jets In Water" FEDSM-ICNMM2010-31030 , Aug 1-5 Montreal Canada.

33. Chris Weiland, Pavlos P. Vlachos, "Organization Of Cylinder Wake Using A Splitter-Plate Active Flow Control", FEDSM-ICNMM2010-31031 , Aug 1-5 Montreal Canada.

34. Kelley C. Stewart, Pavlos P. Vlachos, "Vortex Ring Formation in Wall-Bounded Domains", FEDSM-ICNMM2010-31055 , Aug 1-5 Montreal Canada.

35. John J. Charonko III, Brady Drew, Pavlos P. Vlachos "PIV Dynamic Range Enhancement Using Multiframe Direct-Phase Correlation" FEDSM-ICNMM2010-31206, Aug 1-5 Montreal Canada.

36. Roderick La Foy, Sunghwan Jung, Pavlos P. Vlachos, "Long Term Water Entry Cavity Dynamics, FEDSM-ICNMM2010-31210, Aug 1-5 Montreal Canada.

37. Apsilidis, N., Diplas, P., Dancey, C.L., Vlachos, P.P., Raben, S.G. (2010). "Local scour at bridge piers: The role of Reynolds number on horseshoe vortex dynamics", 5th International Conference on Scour and Erosion-ASCE, November 7-10, San Francisco, CA, USA.

38. Raben S , Vlachos P, "Time Resolved DPIV in a Transonic Turbine Cascade" ASME International Mechanical Congress and Exposition, October 31 - November 6, 2008, Boston MA

39. Yagla Jon J., John Busic, Samuel Koski, Brian Myruski, Chris Weiland and Pavlos Vlachos "Launch Dynamics Environment of a Water Piercing Missile Launcher", International Symposium on Ballistics, National Defense Industrial Association, New Orleans, Louisiana, Sept 21-25 2008

40. Adric Eckstein , John J. Charonko, and Pavlos P. Vlachos "Time Resolved Micro PIV" 14th Int Symp on Applications of Laser Techniques to Fluid Mechanics, Lisbon, Portugal, 07-10 July, 2008

41. Adric Eckstein and Pavlos Vlachos "Compensating for the Phosphorescent Persistence in Intensified Cameras for Micro-PIV" Proceedings of FEDSM2008, 2008 ASME Fluids Engineering Conference August 10-August 14, 2008 Jacksonville, Florida USA, FEDSM2008-55153

42. Adric Eckstein and Pavlos Vlachos "Improved DPIV Accuracy Using Advanced Windowing Techniques" Proceedings of FEDSM2008, 2008 ASME Fluids Engineering Conference August 10-August 14, 2008 Jacksonville, Florida USA, FEDSM2008-55152

43. Weiland, C. and Vlachos, P. "Observation of a Critical Time Scale in Supercavitation Development and the Effect of Gas Leakage," Presented at the 6th Joint ASME/JSME Fluids Engineering Conference, August 10-14, 2008, Jacksonville, Florida, USA.

44. Weiland, C., Michie, C., and Vlachos, P. "Analysis of Passive Wake Mixing Techniques using Time Resolved Digital Particle Image Velocimetry," Presented at the 6th Joint ASME/JSME Fluids Engineering Conference, August 10-14, 2008, Jacksonville, Florida, USA.

45. Cardwell N, Vlachos P and Karen Thole, "Developing and fully developed turbulent flow in ribbed channels", ASME Fluids Engineering Division Summer Conference, August 10-14, 2008, Jacksonville.

46. Raben S, Ng W, Vlachos P, "Spatiotemporal Development of Transitional Wall Jets", ASME Fluids Engineering Division Summer Conference, August 10-14, 2008, Jacksonville.

47. Hubble, D.O., Diller, T.E., Vlachos, P.P., "An Investigation of the Physical Mechanism of Heat Transfer Augmentation in Boundary Layer Flows Subject to Freestream Turbulence," ASME Paper No. H&2008-56302, August 10-14, 2008 Jacksonville, Fl. USA.

48. Gifford, A. Diller, T. E., and P. Vlachos. "An Investigation of the Physical Mechanism of Heat Transfer Augmentation in Stagnating Flows Subject to Freestream Turbulence." Paper No. HT2008-56228, ASME Summer Heat Transfer Conference, HT2008, August 10-14, 2008 Jacksonville, Fl. USA.

49. Williams, A.M and P.P. Vlachos, "The Dynamics of Accumulating Ferrofluid Aggregates," 2008 ASME Division of Fluid Dynamics Summer Meeting, ASME, FEDSM2008-55101: August 14-18, 2008 Jacksonville, FL.

50. Williams, A.M., and Pavlos P. Vlachos, "Spatiotemporal-Resolved Dynamics of Accumulating and Dispersing Ferrofluid Aggregates." 2008 ASME Division of Fluid Dynamics Summer Meeting, ASME, FEDSM2008-55275: August 14-18, 2008 Jacksonville, FL.

51. Karri SP, Charonko J, Vlachos PP. Robust Gradient Estimation Using Radial Basis Functions. Proceedings of 2008 ASME, FEDSM2008-55151: August 14-18, 2008 Jacksonville, FL.

52. David Griffiths, Vishnu Baba Sanduresan, Barbar Akle, Pavlos Vlachos, Donald Leo. (2008). Micro deposition method: a novel fabrication method for ionic polymer metallic composites, SPIE Meeting San Diego March 2008

53. David Griffiths, Daniel Cooper, Pavlos P Vlachos, Donald J Leo (2007). Auscultation revamped using Ionic Polymer metallic composites". Material Research Society, Boston, Nov 2007

54. Eckstein Adric, Vlachos P, 2007, "A Robust Phase Correlation DPIV Processing Algorithm for Time Resolved Measurements." Proc. 7th Int. Symp. Particle Image Velocimetry, Rome, Italy.

55. Eckstein, Adric, Charonko, John, Vlachos, Pavlos P. Phase correlation processing for DPIV measurements: part i spatial domain analysis. 5th Joint ASME/JSME Fluids Engineering Conference,: July 30 - August 2, 2007, San Diego, CA.

56. Eckstein, Adric, Charonko, John, Vlachos, Pavlos P. Phase correlation processing for DPIV measurements: part ii spectral domain analysis. 5th Joint ASME/JSME Fluids Engineering Conference,: July 30 - August 2, 2007, San Diego, CA.

57. Charonko JJ, Vlachos PP. Keynote Paper: Time-Accurate Measurement of Pressure From Particle Image Velocimetry Data. 5th Joint ASME/JSME Fluids Engineering Conference, FEDSM2007-37282: July 30 - August 2, 2007, San Diego, CA.

58. Williams, Alicia, David J. Griffiths, and Pavlos Vlachos, August 2007, " Mixing at Low Reynolds Numbers By Vibrating Cantilevered Ionic Polymers," ASME Fluids Engineering Division Meeting July 30 - August 2, 2007, San Diego, CA.

59. Weiland, C. and Vlachos, P. "Experimental Study of the Stability and Trajectory of a High-Speed Gas Jet under the Influence of Liquid Cross-Flow," ASME Joint U.S.-European Fluids Engineering Summer Meeting, July 30-August 2, 2007, San Diego CA.

60. Weiland, C. and Vlachos, P. "Analysis of the Parallel Blade Vortex Interaction with Leading Edge Blowing Flow Control using the Proper Orthogonal Decomposition," ASME Joint U.S.-European Fluids Engineering Summer Meeting, July 30-August 2, 2007, San Diego CA..

61. Hill, H. E., W. F. Ng, Vlachos PP. (2007). "2D CFD studies using different turbulence models of a circulation control inlet guide vane." FEDSM 2007: Proceedings of the 5th Joint ASME/JSME Fluids Engineering Summer Conference

62. Hill, H. E., W. F. Ng, Vlachos P. (2007). "2D parametric study using CFD of a circulation control inlet guide vane." Proceedings of the ASME Turbo Expo 2007,

63. Pierrakos. O, Karri. S, Williams. A, Charonko. J , Stewart. K , Vlachos. P. "Using fluid mechanics research examples to enhance and stimulate undergraduate engineering education: part II", 2007 ASEE Conference

64. David Griffiths, J. D., Barbar J. Akle, Pavlos P Vlachos, Donald J Leo (2007). "Development of ionic polymer transducers as flow shear stress sensors: Effects of electrode architecture." Proc. of SPIE 6529 (Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2007).

65. Etebari, A, Ewing, J, Gifford, A, Akle, B, Diller, T, Vlachos, P (2006). "New approaches in the measurement of shear stress and heat flux" 2006 SPIE Smart Structures & Materials/NDE, paper # 6174-65.

66. Pierrakos O, Vlachos P., Alley M., June 2006, "Using Research to Educate Freshmen Engineers and High School Students About the Multidisciplinary Character of Engineering," ASEE Annual Conference & Exposition.

67. Charonko J, Vlachos P. On the Dynamics Of Active Flow Control Over a Separated Airfoil Using Leading Edge Unsteady Blowing. 2006 ASME Joint U.S.-European Fluids Engineering Summer Meeting, FEDSM2006-98097: July 2006.

68. Charonko J, Vlachos P. Improvements to the Dynamic Range of Velocity Measurements Using DPIV. 2006 ASME Joint U.S.-European Fluids Engineering Summer Meeting, FEDSM2006-98112: July 2006.

69. Vlachakis V., Brady M., Yoon, R. H., Telionis D. P., Vlachos P.P. July 2006, "Turbulence characteristics in a Rushton stirring vessel: A numerical investigation", ASME Fluids Engineering Division Meeting July 17-20, Miami, FL.

70. Vlachos P.P., Etebari A. Pierrakos O., July 2006, "The effect of an active travelling wave wall motion on the structure of a turbulent boundary layer," ASME Fluids Engineering Division Meeting July 17-20, Miami, FL.

71. Weiland, C. and Vlachos, P. "Modification of Blade Vortex Interactions Using Leading Edge Blowing" to be presented at the ASME Joint U.S.-European Fluids Engineering Summer Meeting, July 17-20, Miami, FL

72. Weiland, C. and Vlachos, P. "Spatio-Temporal Development of Supercavitation Over an Impulsively Started Underwater Projectile," to be presented at the ASME Joint U.S.-European Fluids Engineering Summer Meeting, July 17-20, Miami, FL

73. Williams, A., Ashok Sinha, Pavlos Vlachos, Ishwar Puri, July 2006, "Magnetic Targeting of Particle Transport under Pulsatile Flow," ASME Fluids Engineering Division Meeting July 17-20, Miami, FL.

74. Williams, A, Barbar Akle., Pavlos Vlachos, July 2006, "Active Laminar Mixing Induced by Traveling Wave Surface Disturbance," ASME Fluids Engineering Division Meeting July 17-20, Miami, FL.

75. Weiland, C, Vlachos, P., and Yagla, J. "The Water Piercing Missile Launcher for Launching Joint Service Missiles From Submarines" American Society of Naval Engineers Day, June 19-21, 2006, Arlington, VA

76. Yagla, J., Soifer, M., Deloach, K., Weiland, C. and Vlachos, PP. "The Water Piercing Missile Launcher," Submarine Technology Symposium.

77. Rullan J , Vlachos P. P. Telionis D. P. "Flow Control over Trapezoidal-Wing Planforms with Sharp Edges" 44th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, Jan. 9-12, 2006 AIAA-2006-857

78. Weiland, C., Vlachos, P., and Yagla, J."A Novel Launcher for Cavitating Weapons," Presented at the 2005 International Symposium on Ballistics, Nov 14-18 2005, Vancouver, Canada.

79. Weiland, C., Vlachos, P., and Yagla, J."A Novel Missile Launcher for Submarine Self-Defense," Presented at the 2005 Symposium on Weapon Systems Effectiveness, October 18-20 2005, Austin, TX.

80. Brady M., Vlachos P P, Telionis D., Yoon R H "Velocities of Particles and Bubbles in Grid Turbulence Measured by Particle Image Velocimetry" Centenary of Flotation Symposium, 2005, Brisbane Australia.

81. Brady M., Vlachakis V., Vlachos P P, Telionis D., Yoon R H. Time-resolved DPIV measurements of turbulence characteristics in a stirring vessel agitated by a Rushton Impeller" IC-EpsMsO Athens, 6-9 July, 2005.

82. Etebari, A., Akle, B, Bennett, M, Leo, D, and Vlachos, P (2005). "A dynamic shear stress sensor based on active ionic polymers," Proceedings of the ASME Fluids Engineering Summer Conference.

83. Rullan J , Vlachos P. P. Telionis D. P. "The Aerodynamics and Control of Low Speed Trapezoidal Wings" AIAA 43rd Aerospace Sciences Meeting and Exhibit, Reno, Nevada 2005, AIAA-2005-0059

84. Gibbs J , Vlachos P. P. Telionis D. P. "Aerodynamics of Docked/Formation Compound Aircraft Flight" AIAA 43rd Aerospace Sciences Meeting and Exhibit, Reno, Nevada 2005, AIAA-2005-0843

85. Brady M., Vlachos P. P., Telionis D., Yoon R. H., Sherrel I. "Turbulent Bubble-Particle Interactions Measured by Particle Image Velocimetry" Symposia, Proceedings of SME (paper no. 04-193), 2004, Denver CO.

86. Brady M., Vlachos P P, Telionis D. "Turbulent multi-phase flow interactions through grid turbulence measured by Particle Image Velocimetry" Symposia Proceedings of ASME HT/FED'04, Charlotte, NC.

87. Brady M., Vlachos P P "Novel particle sizing and centroid estimation schemes, Subpixel resolution schemes for Particle Image Velocimeters." Symposia Proceedings of ASME HT/FED'04, Charlotte, NC

88. Chishty W. A., Brady M. R., Vlachos P. P., Schiller N. H., Vandsburger U. "Quantification of modulated spray dynamics by time-resolved DPIV" Symposia Proceedings of ASME HT/FED'04, Charlotte, NC.

89. Etebari, A, Akle, B, Farinholt, K, Bennett, M, Leo, D, Vlachos, P (2004). "The use of active ionic polymers in dynamic skin friction measurements," Proc. 2004 ASME Heat Transfer/Fluids Engineering Summer Conference Charlotte, NC.

90. Etebari, A, Carneal, J, and Vlachos, P (2004). "On the accuracy of wall shear stress using DPIV," Proceedings of the 2004 ASME Heat Transfer/Fluids Engineering Summer Conference Charlotte, NC.

91. Pierrakos O., P. Vlachos, D. Telionis, August 2004, "Vortex Ring Formation in Left Ventricular Flow: An Energy Mechanism to Quantify Losses," WSEAS International Fluid Mechanics Conference.

92. Rullan J, Vlachos P. P. Telionis D. P. and Zeiger M. D, "Flow control of Sharp Edge Wings via Unsteady Blowing" AIAA 42st Aerospace Sciences Meeting and Exhibit, Reno, Nevada 2004, AIAA 2004-0226

93. Brady M., Vlachos P P. "Novel particle sizing and centroid estimation schemes" Proceedings of ASME IMECE 2003. November 16-21, 2003, Washington, D.C.

94. Etebari, A and Vlachos, P (2003). "Application of higher-order compact finite difference schemes to out of plane vorticity measurements," Int. Mech. Eng. Congress, Nov., 2003, Washington, DC

95. Rullan J, P. P. Vlachos D. P. Telionis and M. D Zeiger, "Post-Stall Flow control of Sharp Edge Wings via Unsteady Blowing" AIAA 41st Aerospace Sciences Meeting and Exhibit, Reno, Nevada 2003, AIAA 2003-0062

96. RullanJ, P. P. Vlachos D. P. Telionis and M. D Zeiger, "Post-Stall Flow control of Sharp Edge Wings via Unsteady Blowing" AIAA 41st Aerospace Sciences Meeting and Exhibit, Reno, Nevada 2003, AIAA 2003-0062

97. Vlachos P. P. and Telionis D. P., "Wing-Tip-to-Wing-Tip Aerodynamic Interference" AIAA 41st Aerospace Sciences Meeting and Exhibit, Reno, Nevada 2003, AIAA 2003-0609

98. Abiven C., Vlachos P. P., "Super spatio-temporal resolution, digital PIV system for multi-phase flows with phase differentiation and simultaneous shape and size quantification", IMECE2002-33115 Int. Mech. Eng. Congress, Nov. 17-22, 2002, New Orleans, LA

99. Abiven C., Vlachos P. P. and Papadopoulos G., "Comparative study of established DPIV algorithms for planar velocity measurements", IMECE2002-33170 Int. Mech. Eng. Congress, Nov. 17-22, 2002, New Orleans, LA

100. Brady, M., Abiven C., Vlachos P. P., "Time-Resolved Spray-Droplet Velocity and Size Measurements via Single Camera Laser Sheet Imaging and Planar DPIV", Int. Mech. Eng. Congress, Nov. 17-22, 2002, New Orleans, LA

101. Zeiger M. D., Gerlach J M., Vlachos P. P., Telionis D.P., " Frequency-and-Amplitude-Independent Flow Controller for Sharp-Edged Wings" AIAA 40th Aerospace Sciences Meeting and Exhibit, Reno, Nevada 2002

102. Stamos D.G., Yazdani S.K., Vlachos P.P and Telionis D.P., "Fluid Structure Interaction, an Application to the Response of a Hemisphere to Surface Waves", 6th Biennial Conference on Engineering Systems Design and Analysis, Istanbul Turkey, July 2002, ESDA 2002/ATF-025.

103. Zeiger M. D., Vlachos P.P., Telionis D. P., "The Dynamic Character Of The Vortical Flow Over A Slender Axisymmetric Body" AIAA 39th Aerospace Sciences Meeting and Exhibit, Reno, Nevada 2001

104. Mostafa N., Nayfeh A., Vlachos P.P. and Telionis D. P., "Cavitating Flow over a Projectile" AIAA 39th Aerospace Sciences Meeting and Exhibit, Reno, Nevada 2001

105. El-Okda Y., Vlachos P.P. and Telionis D.P. "Twin Jet Impinging on a Plate with and without a Mean Stream" International Power Lift Conference Oct. 29 Nov. 1 2000, Arlington VA.

106. Vlachos P.P. and Hajj M.R., "A Cinema DPIV Study Of The Unsteady Character Of The Flow Over A Surface Mounted Prism", 4th International Colloquium on Bluff Body Aerodynamics (BBAIV, 2000).

107. Klute S. M., Vlachos P. P., and Telionis D. P., "A High-Speed DPIV Study of the Unsteady Characteristics of Vortex Breakdown", AIAA, Fluid Dynamics Symposium, Fluids 2000 Conference.

108. Vlachos P. P., Zeiger M. D., and Telionis D. P., "The Effect Of Free Surface On The Vortex Shedding From Inclined Circular Cylinders", FEDSM2000-11266, Boston, MA, 2000

109. Vlachos P. P., and Telionis D. P., "Turbulence Characteristics In The Wake Of A Circular Cylinder Near The Free Surface", FEDSM2000-11320, Boston, MA, 2000

110. Vlachos P. P., and Telionis D. P., "Three-Dimensional Streamwise Vortical Structures Of A Turbulent Wake Near The Free Surface." FEDSM2000-11262, Boston, MA, 2000.

111. Vlachos P. P., Zeiger M. D., and Telionis D. P., "The Effect Of Yaw And Free Surface On The Span Wise Vorticity In The Wake Of A Circular Cylinder", ASCE-EMD2000, Proceedings Austin, Texas, May 2000

112. Vlachos P. P and Hajj M. R., "Unsteady Characteristics Of Flow Separation Over A Prism", ASCE-EMD2000 Proceedings, Austin, Texas, May 2000

113. Asimopoulos N., Vlachos P. P, and Telionis D. P., "A High Speed, High Particle Density, Particle-Tracking Method For Turbulence Measurements", FEDSM99-7139, 1999 ASME Fluids Engineering Division Summer Meeting.

114. Telionis D.P., Zeiger M. D., Vlachos P.P., "Unsteady Separated Flows Over 3-D Slender Bodies", AIAA-99-3693, 30th AIAA Fluid Dynamics Conference, Norfolk '99 (invited).

115. Vlachos P. P., Donnelly M.J. and Telionis D. P., "The Design and Testing of a Smart balance System", AIAA-99-3165, Applied Aerodynamics Conference, Norfolk '99.

116. Vlachos P. P. and Hajj M. R., "Flow Characteristics in the Separated Shear Layer", Proceedings of 10th International Conference in Wind Engineering, June '99 Denmark.

117. Vlachos P. P. and Hajj M. R., "PIV Measurements in the Separation Region over a Prism". ASCE-EMD '99 Proceedings, Baltimore'99.

118. Vlachos P. P., Donnelly M.J. Potter T. L., Telionis D. P. and Schaeffler N. W., "Post-Stall Flow Control of Sharp-Edged wings", AIAA 99-0924, 37th Aerospace Sciences Meeting and Exhibit, Reno, Nevada 1999.

119. Vlachos P. P., Donnelly M.J. and Telionis D. P., "On the Wake of a Circular Cylinder Piercing a Water Free Surface", FEDS98-5177, Proceedings of FEDS'98, 1998 ASME Fluids Engineering Division Summer Meeting.

120. Donnelly M.J., Vlachos P. P. and Telionis D. P., "A Vortex Pair Impinging on a Solid Boundary," AIAA 98-0690, 36th Aerospace Sciences Meeting and Exhibit, Reno, Nevada 1998.

121. Sierros G. S., Vlachos P. P. and Papailiou K. D., "The Design of a Small Radial Compressor for a Hybrid Electric Vehicle Gas Turbine", 1st European Conference on Clean Cars, Athens '97.

EXTENDED ABSTRACTS, ABSTRACTS AND POSTERS

1. Dou Zhongwang, Vlachos Pavlos, Measurement of mosquito wake flow using time-resolved tomographic particle image velocimetry Bulletin of the American Physical Society, 2019

2. Singh Bhavini, Rajendran Lalit, Vlachos Pavlos, Bane Sally, Vorticity Generation in a Single Nanosecond Spark Discharge Due to Shock Curvature, Bulletin of the American Physical Society, 2019

3. Rothenberger Sean, Zhang, Jiacheng, Brindise, Melissa; Schnell, Susanne; Vlachos, Pavlos; Rayz, Vitaliy, 4D Flow MRI Bias Error Estimation Bulletin of the American Physical Society, 2019

4. Rajendran Lalit, Zhang Jiacheng, Bane Sally, Vlachos Pavlos, Weighted Least squares density reconstruction for Background Oriented Schlieren (BOS), Bulletin of the American Physical Society, 2019

5. Eshraghi J, Stremler M, Vlachos P, Soap Film Patterns Versus Flow Structures: Do they match?, 71th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2018

6. Chakraborty S, Allmon E, Sepulveda M, Vlachos P, Mechano-genetics of the cardiac development in embryonic medaka, 71st Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2018

7. Jun B, Giarra M, Vlachos P, Multi-dimensional confocal laser scanning microscopy image correlation for nanoparticle flow velocimetry, 71th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2018

8. Zhang J, Brindise M, Scalo C, Vlachos P, Pressure reconstruction using velocity measurement-error based generalized least-squares, 71th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2018.

9. Bhattacharya, S., & Vlachos, P. (2018). Uncertainty Quantification in Volumetric Particle Tracking Velocimetry (PTV). Bulletin of the American Physical Society.

10. Rajendran, L., Bhattacharya, S., Bane, S., & Vlachos, P. (2018). Effect of density gradients on the Cramer-Rao lower bound for volumetric PIV/PTV measurements. Bulletin of the American Physical Society.

11. Singh, B., Rajendran, L., Vlachos, P., & Bane, S. (2018). Characterization of early stages of flow induced by spark plasma discharges using high-speed PIV and BOS. Bulletin of the American Physical Society.

12. Guo, T., Ardekani, A., & Vlachos, P. Multi-parametric defocusing particle tracking velocimetry (PTV) for micro-fluidic channels. 71st Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2018.

13. Zhang, Y., Guo, T., Vlachos, P., & Ardekani, A. Dynamics of liquid-air interface following vertical acceleration-deceleration motion. 71st Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2018.

14. Meyers B, Brindise M, Payne, Dr. RM, Vlachos P, TINY HEARTS IN BIG TROUBLE: CARDIAC FLOW HYDRODYNAMICS IN FETAL SINGLE VENTRICLE HEARTS, 71st Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2018.

15. Zhang J, Scalo C, Vlachos P, Uncertainty based pressure reconstruction from velocity measurement with generalized least squares, 70th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2017.

16. Brindise MC, Dickerhoff B, Saloner D, Rayz VL, Vlachos PP, Investigation of patient-specific cerebral aneurysm using volumetric PIV, CFD, and in vitro PC-MRI, Bulletin of the American Physical Society, 2017.

17. Aramideh S, Guo T, Vlachos PP, Ardekani AM, Spatial velocity fluctuations in flow through porous media, 69th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2016.

18. Bhattacharya S, Charonko J, Vlachos P, Uncertainty quantification in volumetric Particle Image Velocimetry, 69th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2016.

19. Boomsma A, Bhattacharya S, Troolin D, Vlachos P, Pothos S, Uncertainty Estimation for 2D PIV: An In-Depth Comparative Analysis, 69th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2016.

20. Brindise M, Dickerhoff B, Saloner D, Rayz V, Vlachos P, Volumetric PIV in Patient-Specific Cerebral Aneurysm, 69th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2016.

21. Chakraborty S, Vlachos P, Calculation of pressure drop in the developmental stages of the medaka fish heart and microvasculature, 69th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society Bulletin of the American Physical Society, 2016.

22. Giarra M, Vlachos P, editors. Adaptive spectral filtering of PIV cross correlations, 69th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2016.

23. Guo T, Aramideh S, Ardekani AM, Vlachos PP. Volumetric microscale particle tracking velocimetry (PTV) in porous media, 69th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2016

24. Jun B, Giarra M, Golz B, Main R, Vlachos P, Two-dimensional confocal laser scanning microscopy image correlation for nanoparticle flow velocimetry, 69th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2016.

25. Meyers B, Vlachos P, Goergen C, Scalo C, Color Doppler Ultrasound Velocimetry Flow Reconstruction using Vorticity-Streamfunction Formulation, 69th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2016.

26. Rajendran L, Singh B, Giarra M, Bane S, Vlachos P, Assessment of sources of error in Background Oriented Schlieren (BOS) measurements, 69th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2016.

27. Singh B, Rajendran L, Giarra M, Bane S, Vlachos P, Study of shock shape and strength as a function of plasma energy using background oriented schlieren and shadowgraph, 69th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2016.

28. Vlachos P, Brindise M, editors. Transition in Pulsatile Pipe Flow, 69th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2016.

29. Wang S, Guo T, Dabiri S, Vlachos PP, Ardekani AM, Effect of surfactants on bubble collisions with an air-water interface Bulletin of the American Physical Society. Bulletin of the American Physical Society, 69th Annual Meeting of the APS Division of Fluid Dynamics, 2016.

30. Zhang J, Scalo C, Vlachos P, Instantaneous Pressure Field Calculation from PIV Data with Least-Square Reconstruction, 69th Annual Meeting of the APS Division of Fluid Dynamics, Bulletin of the American Physical Society, 2016.

31. Brindise, M.C., Zhang, J., Dickerhoff, B., Scalo, C., Schnell, S., Markl, M., Saloner, D., Rayz, V.L., Vlachos, P.P. (2016, Oct 22). 4D Flow-MRI, PIV, and CFD Integrated Framework for Investigating Velocity and Pressure Fields in Patient Specific Cerebral Aneurysm. International Society for Magnetic Resonance in Medicine Workshop on Quantitaive MR: Innovation & Implementation for Clinical & Physiological Insights. San Francisco, CA.

32. S. Aramideh, T. Guo, P. Vlachos, A. M. Ardekani "Velocity fluctuations in flow through porous media" 8th International Conference on Porous Media & Annual Meeting, May 9-12, Cincinnati, Ohio, 2016

33. S. Aramideh, A. M. Ardekani, I. Bilionis, P. Vlachos "Poster: Stochastic reservoir modeling: Uncertainty analysis of the chemical injection in enhanced oil recovery" 8th International Conference on Porous Media & Annual Meeting, May 9-12, Cincinnati, Ohio , 2016

34. M Brindise, P Vlachos, "Experimental Comparison of the Hemodynamic Effects of Bifurcating Coronary Stent Implantation Techniques" Bulletin of the American Physical Society 6 2015

35. M Giarra, P Vlachos, "The Anatomy of Fourier-Based Correlation Image Velocimetry and Sources of Decorrelating Errors", Bulletin of the American Physical Society 60 2015

36. S Gart, J Socha, P Vlachos, S Jung, "How dogs lap: open pumping driven by acceleration" Bulletin of the American Physical Society 60, 2015

37. T Guo, MJ Rau, PP Vlachos, SV Garimella, The effect of confinement on the development of an axisymmetric wall-jet in confined jet impingement, Bulletin of the American Physical Society 60, 2015

38. B Meyers, P Vlachos, J Charonko, M Giarra, C Goergen, "Accuracy and Robustness Improvements of Echocardiographic Particle Image Velocimetry for Routine Clinical Cardiac Evaluation", Bulletin of the American Physical Society 60

39. P. P. Vlachos, W. C. Little "The Propagation Velocity Spectrum of the Left Ventricle Early Filling Wave: Physical and Clinical Significance" 7th World Congress of Biomechanics, July 2014

40. F. W. Damen, Y. T. Delorme, S. H. Frankel, P. P. Vlachos, C. J. Goergen, "4-Dimensional Ultrasound Imaging of Left-Ventricular Dynamics", 7th World Congress of Biomechanics, July 2014

41. N. Vorobtsova, C. Chiastra, F. Migliavacca, D. Sane, M. Stremler, P. Vlachos, "Computational modeling of coronary tortuosity", 7th World Congress of Biomechanics, July 2014

42. Matthew N. Giarra, John J. Soca, Pavlos P. Vlachos "X-ray particle image velocimetry of the flow in grasshopper hearts.. Society for Integrative and Comparative Biology" Annual Meeting 2014

43. Matthew Giarra, John Charonko, Pavlos Vlachos "Direct Measurement of Rotation and Scaling in Particle Image Velocimetry using the Fourier-Mellin Transform". 66th Annual Meeting of the APS Division of Fluid Dynamics, Volume 58, Number 18, 2013.

44. S. Bhattacharya, B. Meyers, M. Giarra, R. La foy, P. Vlachos "Uncertainty estimation for Stereo-Particle Image Velocimetry measurements", 66th Annual Meeting of the APS Division of Fluid Dynamics, Volume 58, Number 18, 2013.

45. La Foy, Roderick, and Pavlos Vlachos. "A Comparison of 3D3C Velocity Measurement Techniques." American Physical Society Division of Fluid Dynamics (2013).

46. Xue, Z., Charonko, J.J., & Vlachos, P.P. (2013). Correlation plane statistical analysis for estimation of measurement uncertainty for Particle Image Velocimetry. 66th Annual Meeting of the APS Division of Fluid Dynamics

47. Elizabeth Voigt, Cara Buchanan, Nichole Rylander, Pavlos Vlachos. "A Macroscale Platform for Tumor Microenvironment Studies." *ASME Global Congress on Nano Engineering for Medicine and Biology*, Boston MA, February 2013.

48. Cara Buchanan, Elizabeth Voigt, Christopher Szot, Pavlos Vlachos, and Marissa Rylander. Tissue-Engineered Tumor Microvessels to Study Shear Stress-Mediated Angiogenesis. Paper Number

NEMB2013-93220. Proceedings of the 2013 ASME Global Congress on Nano Engineering for Medicine and Biology, February 4-6, 2013, Boston, MA, USA.

49. Cara Buchanan, Elizabeth Voigt, Christopher Szot, Pavlos Vlachos, Nichole Rylander. "Shear Stress Regulates Tumor-Expressed Angiogenic Factors in a 3D Microfluidic Co-Culture Model." *Biomedical Engineering Society (BMES) Annual Meeting*, Atlanta GA, October 2012. Poster Presentation.

50. Elizabeth Voigt, Cara Buchanan, Nichole Rylander, Pavlos Vlachos. "Blood Flow Characterization in a Perfused Collagen Vessel Bioreactor using X-Ray Micro-PIV." *Virginia Space Grant Consortium Student Research Conference*, Williamsburg VA, April 2012. Oral Presentation.

51. Elizabeth Voigt, Cara Buchanan, Nichole Rylander, Pavlos Vlachos. "Blood Flow Characterization in a Perfused Collagen Vessel Bioreactor using X-Ray Micro-PIV." *Metropolitan Biophotonics Symposium*, Baltimore MD, March 2012. Poster Presentation.

52. Cara Buchanan, Elizabeth Voigt, Christopher Szot, Joseph Freeman, Pavlos Vlachos, Nichole Rylander. "Microfluidic Platform to Dynamically Image Shear Stress-Mediated Tumor Angiogenesis." *Metropolitan Biophotonics Symposium*, Baltimore MD, March 2012. Invited Talk.

53. Cara Buchanan, Elizabeth Voigt, Christopher Szot, Pavlos Vlachos, Nichole Rylander. "Tumor Hydrodynamics in a 3D Microfluidic Vascular Model." *Wake Forest Institute of Regenerative Medicine Annual Retreat*, Pinehurst NC, March 2012. Poster Presentation.

54. Elizabeth Voigt, Cara Buchanan, Nichole Rylander, Pavlos Vlachos. "X-Ray Micro-PIV in a Blood-Perfused Collagen Vessel Bioreactor." *Graduate Student Assembly Research Symposium*, Blacksburg VA, March 2012. Oral Presentation.

55. Cara Buchanan, Elizabeth Voigt, Christopher Szot, Joseph Freeman, Pavlos Vlachos, Nichole Rylander. "Investigation of Shear-Stress Mediated Angiogenesis using a 3D *In Vitro* Tumor Vascular Model." *Keystone Symposia: Angiogenesis, Advances in Basic Science and Therapeutic Applications*, Snowbird UT, January 2012. Poster Presentation.

56. Casandra Niebel, Kelley Stewart, Takahiro Ohara, John Charonko, Pavlos Vlachos, William Little, "Estimation of Left Ventricular Wall Stiffness by Analysis of Late Diastolic Pressure Components", SBC2011-53295, ASME 2011 Bioengineering Conference, June 2011

57. Elizabeth Voigt, Cara Buchanan, Jaime Schmieg, Nichole Rylander, Pavlos Vlachos, Virginia Tech, "Wall Shear Stress Measurements In An Arterial Flow Bioreactor", SBC2011-53333, ASME 2011 Bioengineering Conference, June 2011

58. Kelley Stewart, John Charonko, Takahiro Ohara, William Little, Pavlos Vlachos, "Left Ventricular Vortex Ring Dynamics and Their Association to Early Diastolic Filling", SBC2011-53398, ASME 2011 Bioengineering Conference, June 2011

59. Stefano Morlacchi, Jaime Schmieg, Daniel Cooper, Francesco Burzotta, Francesco Migliavacca, Pavlos Vlachos, "Experimental Investigation of the Local Blood Flow Pattern in Stented Coronary Bifurcations", SBC2011-53468, ASME 2011 Bioengineering Conference, June 2011

60. Daniel Cooper, Pavlos Vlachos, "Parametric Investigation of Magnetic Particle Transport for Targeted Drug Delivery Applications", SBC2011-53889, ASME 2011 Bioengineering Conference, June 2011

61. Cara Buchanan, Elizabeth Voigt, Christopher S. Szot, Joseph Freeman, Pavlos Vlachos, Nichole Rylander, "Development of a 3D Microfluidic Culture Model to Study the Effect of Shear Stress on Tumor Angiogenesis", SBC2011-53910, ASME 2011 Bioengineering Conference, June 2011

62. Cara Buchanan, Elizabeth Voigt, Christopher Szot, Joseph Freeman, Pavlos Vlachos, Nichole Rylander. "Correlation of Shear Stress and Angiogenesis using microPIV Flow Diagnostics in an *In Vitro* Tumor Model." *Biomedical Engineering Society (BMES) Annual Meeting*, Hartford CT, October 2011. Poster Presentation.

63. Elizabeth Voigt, Roderick La Foy, Kamel Fezzaa, Wah-Keat Lee, Pavlos Vlachos, "Accuracy of standard image processing and PIV analysis applied to x-ray velocimetry", 64th meeting of the American Physical Society Division of Fluid Dynamics, in Baltimore, MD, 2011

64. Sam Raben, Pavlos Vlachos, “Three-dimensional investigation of the response of bubble/particle motion to grid generated turbulence”, 64th meeting of the American Physical Society Division of Fluid Dynamics, in Baltimore, MD, 2011

65. Kelley Stewart, Sunghwan Jung, William Little,, “The decay of vortex ring circulation in left ventricular filling”, 64th meeting of the American Physical Society Division of Fluid Dynamics, in Baltimore, MD, 2011

66. Casandra Niebel, Takahiro Ohara, Pavlos Vlachos, William Little, “Measuring heart filling propagation velocity using the cross wavelet transform”, 64th meeting of the American Physical Society Division of Fluid Dynamics, in Baltimore, MD, 2011

67. Roderick La Foy, Pavlos Vlachos, “Analysis of an optimized MLOS tomographic reconstruction algorithm and comparison to the MART reconstruction algorithm”, 64th meeting of the American Physical Society Division of Fluid Dynamics, in Baltimore, MD, 2011

68. Matthew Giarra, Saikat Jana, Sunghwan Jung, Pavlos Vlachos, “Particle Image Velocimetry Around Swimming Paramecia”, 64th meeting of the American Physical Society Division of Fluid Dynamics, in Baltimore, MD, 2011

69. Benjamin Jackson, Sunghwan Jung, Pavlos Vlachos, “Surface seal in the water-entry of hydrophobic spheres”, 64th meeting of the American Physical Society Division of Fluid Dynamics, in Baltimore, MD, 2011

70. Amirreza Rouhi, Matthew Ford, Ugo Piomelli, Pavlos Vlachos, “The effect of waveform shape on the flow in endovascular stents”, 64th meeting of the American Physical Society Division of Fluid Dynamics, in Baltimore, MD, 2011

71. Daniel Cooper, John Charonko, Pavlos Vlachos, “Significance of neglected hydrodynamic forces on the motion of submerged particles acted on by external body forces”, 64th meeting of the American Physical Society Division of Fluid Dynamics, in Baltimore, MD, 2011

72. John Charonko, Pavlos Vlachos, “Estimation of uncertainty bounds for individual PIV measurements”, 64th meeting of the American Physical Society Division of Fluid Dynamics, in Baltimore, MD, 2011

73. Navish Wadhwa, Pavlos Vlachos, Sunghwan Jung, “Bouncing Jets”, 64th meeting of the American Physical Society Division of Fluid Dynamics, in Baltimore, MD, 2011

74. Jaime Schmieg, Mark Stremler, Pavlos Vlachos, “Laminar jet injection in a pipe with co-flow”, 64th meeting of the American Physical Society Division of Fluid Dynamics, in Baltimore, MD, 2011

75. Alex Villanueva, Kelley Stewart, Pavlos Vlachos, Shashank Priya, “Effects of a flexible margin on robojelly vortex structures”, 64th meeting of the American Physical Society Division of Fluid Dynamics, in Baltimore, MD, 2011.

76. Stewart KC, Kumar R, Charonko JJ, Vlachos P, Little WC. “Investigation of the Relationship Between Color M-Mode Early Diastolic Propagation Velocity and Left Ventricular Adverse Pressure Gradients.” ASME 2010 Summer Bioengineering Conference, SBC2010-19449 June 16-19, 2010

77. Charonko J, Kumar R, Stewart K, Little WC, Vlachos P. “A Relationship Between Pressure Fields and Flow Patterns During Left Ventricular Diastolic Dysfunction Using 2D Phase Contrast MRI.” ASME 2010 Summer Bioengineering Conference, SBC2010-19423: June 16-19, 2010

78. Raben, S.G., La Foy, R., Vlachos, P.P., Ross, S.D., ``Efficient computation of FTLE/LCS for experimental two- and three-dimensional PTV data", 63rd meeting of the American Physical Society Division of Fluid Dynamics, in Long Beach California 2010.

79. Holden, D. P., Socha, J.J., Vlachos, P.P. “Flying Snake Flight Performance: Role of cross-sectional shape and tandem body segments”, 63rd meeting of the American Physical Society Division of Fluid Dynamics, in Long Beach California 2010

80. E. Voigt, R. La Foy, K. Fezzaa, W.K. Lee, P. Vlachos, “Synchrotron X-Ray Three Dimensional microPIV”, American Physical Society Division of Fluid Dynamics (APS DFD) Annual Meeting, Platform Presentation, Nov22 2010, Long Beach CA

81. Roderick La Foy, Samuel Raben, Pavlos Vlachos. Scalable Tomographic PIV Using a Reprojection Reconstruction. APS Division of Fluid Dynamics. November 2010.

82. E. Voigt, C. Buchanan, J. Schmieg, M.N. Rylander, P. Vlachos, "Flow Characterization of an Arterial Flow Bioreactor using Particle Image Velocimetry", Biomedical Engineering Society (BMES) Annual Meeting, Poster Presentation, Oct 7 2010, Austin TX

83. E Niebel, C., Stewart, K., Kumar, R., Ohara, T., Vlachos, P., Little, W., ``Relationships of E and A wave Pressure Distribution to Left Ventricular Diastolic Dysfunction", Biomedical Engineering Society Annual Meeting, in Austin Texas 2010.

84. Cooper DB, Vlachos PP. "2D Analysis of Acoustic Transfer of Cardiovascular Sounds in the Human Chest" presented at the Proceedings of the ASME 2009 Summer Bioengineering Conference (SBC2009) June 17-21, Resort at Squaw Creek, Lake Tahoe, CA, USA

85. Karri Satya DB, Vlachos PP. "Effect of Stent Design Parameter on Corronary Artery Flow" presented at the Proceedings of the ASME 2009 Summer Bioengineering Conference (SBC2009) June 17-21, Resort at Squaw Creek, Lake Tahoe, CA, USA

86. Weiland, C. and Vlachos, P. "Dynamic Characteristics at the Interface of Underwater Round Jets," presented at the 62nd Annual Meeting of the APS Division of Fluid Dynamics, Minneapolis, Minnesota, November 22-24, 2009.

87. Weiland, C. and Vlachos, P. "Organization of Cylinder Wake using a Splitter Plate Active Flow Control," presented at the 62nd Annual Meeting of the APS Division of Fluid Dynamics, Minneapolis, Minnesota, November 22-24, 2009.

88. Stewart KC, Kumar R, Vlachos PP, Little WC. "Analysis of Diastolic Filling Pressure Gradients Assessed by Color M-Mode Echocardiography," presented at the Biomedical Engineering Society Annual Meeting, Pittsburgh, PA, October 7-10, 2009.

89. Stewart KC, Kumar R, Charonko JJ, Vlachos PP, and Little WC. "A New Automated Method for Characterizing Diastolic Dysfunction Using Color M-Mode Echocardiography," presented at the Biomedical Engineering Society Annual Meeting, Pittsburgh, PA, October 7-10, 2009.

90. Raben, S.G., Charonko, J., Vlachos, P.P., "Strategies for DPIV Outlier Replacement Using Gappy POD," presented at the 62nd meeting of the APS Division of Fluid Dynamics, Minneapolis, Minnesota November 22-24, 2009.

91. Apsilidis N., Raben S.G., Diplas P., Dancey C.L., Vlachos P.P., Khosronejad A., Sotiropoulos F., "Reynolds number effects on the dynamics of the turbulent horseshoe vortex: High resolution experiments and numerical simulations" presented at the 62nd meeting of the APS Division of Fluid Dynamics, Minneapolis, Minnesota November 22-24, 2009.

92. Cooper DB, Vlachos PP. "Finite Element Analysis of Pulse Wave Velocity in Stented Arteries," presented at the The 2009 Joint ASCE-ASME-SES Conference on Mechanics and Materials, Blacksburg, VA, June 24-27, 2009.

93. Schmieg, J., Eckstein, A., Charonko, J., Vlachos, P. "A Methodology for Time-Resolved microDPIV" presented at the 62nd meeting of the APS Division of Fluid Dynamics, Minneapolis, Minnesota November 22-24, 2009.

94. Schmieg J, Vlachos P. "Characterization of the Transient Responsiveness of Magnetic Particles" poster presented at the Biomedical Engineering Society Annual Meeting, Pittsburgh, PA, October 7-10, 2009.

95. Rahul Kumar MD, Kelley C. Stewart, John J. Charonko, Pavlos P. Vlachos PhD, William C. Little MD, "Diastolic Intraventricular Pressure Gradients Assessed by Color M-Mode Echocardiography", American Heart Association Annual Meeting, 2008

96. Williams, A. and Vlachos, P. "Kelvin-Helmholtz And Rayleigh-Taylor Instabilities During Accumulation And Dispersion Of Ferrofluid Aggregates" Presented at 150 Years of Vortex Dynamics, International Union and Theoretical and Applied Mechanics Symposium, Copenhagen, Denmark, October 12-16, 2008. (only 100 papers accepted)

97. Weiland, C. and Vlachos, P. "The Role of Vortex Ring Formation on the Development of Impulsively Induced Supercavitation," Presented at 150 Years of Vortex Dynamics, International

Union and Theoretical and Applied Mechanics Symposium, Copenhagen, Denmark, October 12-16, 2008. (only 100 papers accepted)

98. Weiland, C., Yagla, J., and Vlachos, P. "Submerged Gas Jet Interface Stability," XXII International Congress on Theoretical and Applied Mechanics, Adelaide, Australia, August 25-29, 2008.

99. Adric Eckstein, Pavlos Vlachos "Compensating for the Phosphorescent Persistence in Intensified Cameras for Micro-PIV" Proceedings of FEDSM2008, 2008 ASME Fluids Engineering Conference August 10-August 14, 2008 Jacksonville, Florida USA, FEDSM2008-55153

100. Schmieg Jaime, Alicia Williams, Pavlos Vlachos. "Magnetic Drug Targeting: Drug Delivery in Large Vasculature" Proceedings of the ASME 2008 Summer Bioengineering Conference, SBC2008-193157: June 25-29, 2008.

101. Charonko J, Karri SP, Schmieg J, Prabhu SV, Vlachos PP. A Time Resolved DPIV in-vitro evaluation of coronary stents in realistic conditions: Part I – influence of stent configuration. Proceedings of the ASME 2008 Summer Bioengineering Conference, SBC2008-192651: June 25-29, 2008.

102. Stewart K, Kumar R, Charonko J, Vlachos PP, Little W. A Hydrodynamic Efficiency Parameter As A Novel Left Ventricular Diastolic Dysfunction Diagnostic Metric. Proceedings of the ASME 2008 Summer Bioengineering Conference, SBC2008-192954: June 25-29, 2008.

103. Charonko J, Stewart K, Kumar R, Little W, Vlachos PP. Hydrodynamics of Left Ventricle Diastolic Dysfunction: In-Vivo Investigation. ESM 100 Year Anniversary Mechanics Conferences. Virginia Polytechnic Institute and State University, Blacksburg, VA: May 29-30, 2008.

104. Kumar R, McNeal G, Stewart KC, Charonko JJ, Pierrakos O, Vlachos PP, Ntim WO, Hundley G, Hamilton CA, Little WC. Phase Contrast Imaging: A Novel Way of Assessing Left Ventricular Diastolic Function. SCMR Eleventh Annual Scientific Sessions: February 1-3, 2008.

105. Charonko J, Karri SP, Schmieg J, Prabhu SV, Vlachos PP. A Time Resolved DPIV in-vitro evaluation of coronary stents in realistic conditions: Part II – effect of stent design. Proceedings of the ASME 2008 Summer Bioengineering Conference, SBC2008-192646: June 25-29, 2008.

106. Stewart K, Kumar R, Charonko J, Vlachos PP, Little W. A Novel Break Point Parameter As A Diagnostic Tool For Left Ventricular Diastolic Dysfunction. Proceedings of the ASME 2008 Summer Bioengineering Conference, SBC2008-192999: June 25-29, 2008.

107. Charonko J, Stewart K, Kumar R, Little W, Vlachos P.P: **(invited paper)** Hydrodynamics of Left Ventricle Diastolic Dysfunction: In-Vivo Investigation. Inaugural International Conference of the Engineering Mechanics Institute: Minneapolis, Minnesota May 18-21, 2008.

108. Charonko J, Schmieg J, Karri SP, Vlachos P. Influence of Coronary Stent Design on Wall Shear Stress In-Vitro. Virginia Tech Dean's Forum on Health, Food, and Nutrition: November 5, 2007, Virginia Tech.

109. Golay. M, Geiger.S, Harless.B, Holzgang.B, Pugh.D, Stanhope.R, Wolfe.P, Karri.S, Pierrakos.O, Vlachos.P "Effect of Stent Design Parameters on Fluid and Structural Mechanics in Coronary Arteries" . 2007 ASME Summer Bioengineering Conference.

110. Williams, A.M and P.P. Vlachos (Presented by Satyaprakash Karri), "Dynamics of Magnetic Drug Targeting in Cardiovascular Flows." 2007 ASME Summer Bioengineering Conference, June 2007.

111. Karri.S, Etebari.A, Vlachos.P," Time Resolved DPIV Analysis of Pulsatile flow in Symmetric Stenotic Arteries-A Comparsion Between Arterial and Coronary Flow" 2007 ASME Summer Bioengineering Conference.

112. Charonko J, Vlachos P. PIV Driven Computational Flow Simulation. 60th Annual Meeting of the APS/DFD: Salt Lake City, UT, November 18-20, 2007

113. Williams, A.M., K. Stewart, and P.P. Vlachos, "The Dynamics of Agglomerated Ferrofluid in Steady and Pulsatile Flows." 60th Annual Meeting of the American Physical Society Division of Fluid Dynamics, November 2007.

114. Etebari, A, Pierrakos, O, Raben, S, Satyaprakash, BK, Vlachos, P (2006) "Direct, dynamic wall shear stress measurements in cardiovascular flows: Application to stenotic vessels," 2006 ASME Summer Bioengineering Conference.

115. Etebari, A, Kang, S, Lee, YW, Vlachos, P (2006) "Characterization of near-wall flow over endothelial cell monolayers," 2006 ASME Summer Bioengineering Conference.

116. Pierrakos O., M. Alley, P. Vlachos, June 2006, "Translation of Biomedical Engineering Research to Undergraduate and Graduate Level Education," 2006 Summer Bioengineering Conference.

117. Pierrakos O., A. Etebari, S. Raben, S. Prakash Karri, P. Vlachos, June 2006, "Direct Dynamic Wall Shear Stress Measurements in Cardiovascular Flows: Applications to Mechanical Heart Valves," 2006 Summer Bioengineering Conference.

118. Raben S., Satyaprakash, BK, Etebari, A, Vlachos, P (2006) "DPIV analysis of flow through an asymmetric coronary stenosis," 2006 ASME Summer Bioengineering Conference.

119. Satyaprakash, BK, Raben, S, Etebari, A, Vlachos, P (2006) "Effects of stents in curved coronary arteries," 2006 ASME Summer Bioengineering Conference.

120. Satyaprakash, BK, Raben, S, Etebari, A, Vlachos, P (2006) "Time-resolved analysis of stented coronary arteries," 2006 ASME Summer Bioengineering Conference.

121. Pierrakos O., Vlachos P.P., June 2005, "In-vitro Investigation of Vortex Formation Past Mechanical and Biological Bileaflet Heart Valve Prostheses," ASME Summer Bioengineering Conference, June 2005 Veil Co.

122. Pierrakos O., P. Vlachos, June 2005, "Quantifying 3-D Anisotropic Inhomogeneous Turbulence Dissipation in Left Ventricular Flows Using a Large Eddy PIV Method," ASME Summer Bioengineering Conference.

123. Pierrakos O., P. Vlachos, June 2005, "In-vitro Investigation of Vortex Formation Past Mechanical and Biological Bileaflet Heart Valve Prostheses," ASME Summer Bioengineering Conference.

124. Etebari, A, Satyaprakash, K, Akle, B, Bennett, M, Leo, D, Vlachos, P (2005) "A novel wall shear stress sensor for cardiovascular applications," 2005 ASME Summer Bioengineering Conference.

125. Etebari, A, Akle, B, He, X, Leo, D, Lee, Y-W, Vlachos, P (2005) "Development of a novel dynamic bioreactor," 2005 ASME Summer Bioengineering Conference.

126. Karri Satyaprakash, Etebari, A, Vlachos, P (2005) "Characterization of diseased coronary blood flow using DPIV," 2005 ASME Summer Bioengineering Conference.

127. Karri Satyaprakash, Ali Etebari, Pavlos Vlachos, P (2005) "Characterization of diseased coronary blood flow using DPIV," 2005 ASME Summer Bioengineering Conference.

128. Brady M., Vlachos P P, Telionis D. "Bubble Bouncing" Galley of Fluid Motion, APS Poster Presentation, Nov. 19-22 2005. Chicago, IL.

129. Charonko J. Sykes D, Vandsburger U, Vlachos P. Endoscopic DPIV for Gas Turbine Measurements. 2005 Virginia Tech Turbomachinery and Propulsion Review. September 22-23, 2005.

130. Pierrakos O., P. Vlachos, November 2005, "Quantifying the Incoming Jet Past Heart Valve Prostheses Using Vortex Formation Dynamics," American Physical Society 58th Annual Division of Fluid Dynamics Meeting.

131. Weiland, C. and Vlachos, P. "Cavitation Inception on Submerged, High-Speed Bodies," Presented at the APS-DVD Gallery of Fluid Motion, Nov 20-22, 2005, Chicago Illinois.

132. Pierrakos O., P. Vlachos, 2004, "Identification of a New Energy Loss Mechanism for Flow Past Heart Valves," Poster Session, Biomedical Engineering Society (BMES) Meeting.

133. Etebari, A, Vlachos, P, Hamilton, C, and Hundley, G (2004). "A stochastic method for medical image segmentation," 2004 Virginia Tech-Wake Forest Annual Graduate Student Symposium.

134. Charonko J, Yazdani S Vlachos, P. In-Vitro Examination of Coronary flow in Stented Arteries using DPIV, 2004 BMES Annual Fall Meeting: October 2004.

135. Charonko J, Ragab SA, Vlachos P. A Numerical Analysis of Cardiovascular Stent Design Considerations. 2003 ASME International Mechanical Engineering Congress & Exposition, IMECE2003-42770: November 2003.

136. Charonko, J., A. Etebari, B. Akle, P. Vlachos, D. Leo. "Novel Non-Invasive Methods For In-Vitro or Ex-Vivo Vessel Compliance Measurements". Annual Fall Meeting of BMES, 2003.

137. Charonko J, Ragab SA, Vlachos P. Improved Stent Design Through Mathematical Modeling. The Virginia Tech – Wake Forest University School of Biomedical Engineering and Sciences 2nd Student Research Symposium: May 1, 2003.

138. Etebari A., O. Pierrakos and P. P. Vlachos "Automatic MRI Image Segmentation And Left Ventricle Surface Reconstruction For Characterizing Myocardial Muscle Function" BED-Vol.-53, Advances in Bioengineering, 2002 ASME IMECE November 17-22, 2002. New Orleans, Louisiana

139. Etebari A., C. Abiven, O. Pierrakos and P. P. Vlachos "High Spatio-Temporal Resolution Digital Particle Image Velocimetry Near Compliant, Dynamically Moving Boundaries" BED-Vol.-53, Advances in Bioengineering, 2002 ASME IMECE November 17-22, 2002. New Orleans, Louisiana

140. Mace R. , P. P. Vlachos, and D. P. Telionis "On The Interaction Of Natural And Mechanical Heart Valve Leaflets With The Chordae Tendineae" BED-Vol.-53, Advances in Bioengineering, 2002 ASME IMECE November 17-22, 2002. New Orleans, Louisiana

141. Pierrakos O. , P. P. Vlachos, D. P. Telionis, S. Yazdani and A. Etebari "Characterization Of Hemodynamic Performance And Degree Of Flow Redirection In The Left Ventricle Dependent On The Mitral Mechanical Heart Valve Orientation" BED-Vol.-53, Advances in Bioengineering, 2002 ASME IMECE November 17-22, 2002. New Orleans, Louisiana

142. Yazdani S. K., P. P. Vlachos, D. D. Telionis, O. Pierrakos "Effects Of Womersely And Reynolds Numbers On A Symmetric Compliant Bifurcation" BED-Vol.-53, Advances in Bioengineering, 2002 ASME IMECE November 17-22, 2002. New Orleans, Louisiana

143. Yazdani S. K., P. P. Vlachos, J. L. Berry, O. Pierrakos "Analysis Of Fluid-Stent Interaction Via Digital Particle Image Velocimetry" BED-Vol.-53, Advances in Bioengineering, 2002 ASME IMECE November 17-22, 2002. New Orleans, Louisiana

144. Pierrakos O., Vlachos P. P., and Telionis D. P., " Left-Ventricle Flow Redirection Dependence on Prosthetic Heart Valve Configuration" Prosthetic Heart Valve Workshop, Hilton Head, Sc, 2002

145. Pierrakos O., P. P. Vlachos, and D. P. Telionis, "The Effect Of Orientation Downstream Of Mitral Mechanical Heart Valves" BED-Vol. 51, 2001 Advances in Bioengineering Conference, ASME 2001, NY

146. Etebari A, P. P. Vlachos and R. Kriz "Development Of A Virtual Scientific Visualization Environment For The Analysis Of Complex Flows In The Cardiovascular System" BED-Vol. 50, 2001 Bioengineering Conference, ASME 2001

147. Vlachos P. P., O. Pierrakos, A. Phillips and D. P. Telionis, "Vorticity And Turbulence Characteristics Inside A Transparent Flexible Left Ventricle" BED-Vol. 50, 2001 Bioengineering Conference, ASME 2001.

148. Pierrakos O. Vlachos P. P. and Telionis D. P., " Turbulent Flow Characteristics Downstream Of Biological And Mechanical Mitral Heart Valves" BMES Fall Annual Meeting, October 4-7, 2001, Durham, NC

149. Phillips A. Vlachos P. P. and Telionis D. P., " The Effect Of The Chordae Tendineae On Blood Flow Turbulence" BMES Fall Annual Meeting, October 4-7, 2001, Durham, NC

150. Yazdani, S. P. P. Vlachos, " A Time Resolved DPIV Study Of The Flow Characteristics In A Flexible Bifurcation Model" BMES Fall Annual Meeting, October 4-7, 2001, Durham, NC

INVITED KEYNOTE PRESENTATIONS OR LECTURES (PARTIAL LIST)

1. Fluid Mechanics in Clinical Echocardiography, Mechanical and Aerospace Engineering Dept, University of Southern California, Feb. 2020

2. Mechanics for Evidence-Based Clinical Decisions, Indiana University School of Medicine, 2019 Morris Green Physician Scientist Development Program Fall Retreat, Sept 2019

3. Clinical flow measurements, putting experimental fluid mechanics in clinical practice, Mechanical Engineering Dept, Johns Hopkins University, April. 2019
4. Clinical fluid mechanics, Mechanical Engineering Dept, NTUA Greece, July 2018
5. The signal in the noise, Saint Antony Falls Laboratory, Univ. of Minnesota, April 2017
6. The Hearts Vortices, Saint Antony Falls Laboratory, ETHZ, Jan2017
7. The Hearts Vortices, Saint Antony Falls Laboratory, Univ. of Minnesota, Oct 2015
8. Optimization of tomographic particle image velocimetry, Office of Naval Research, Oct 2013
9. Advances in Particle Image Velocimetry, TSI Corp. Oct 2013
10. Hydrodynamics of left-ventricular filling and diastolic dysfunction, Rutgers University, April 2013
11. Hydrodynamics of left-ventricular filling and diastolic dysfunction, University of Virginia, June 2012
12. Hydrodynamics of left-ventricular filling and diastolic dysfunction, Purdue University, April 2012
13. Vortices formed at the mitral valve tips aid left ventricle filling, Mini-symposium: Cardiac Fluid Dynamics: Translating Fundamental Insights into Clinical Practice, Annual Division of Fluid Dynamics, American Physical Society, Meeting 2011.
14. Accuracy and uncertainty in velocity and wall shear stress estimation in (stented) arteries using particle image velocimetry (PIV), Food and Drug Administration (FDA), August 2011.
15. CFD / EFD Choice – A Dilemma for Industries, "Application of CFD/EFD to Bio Fluid Mechanics – Challenges" Expert Panelist, ASME IMECE 2010 Vancouver CA.
16. Hydrodynamics of Left-Ventricle Filling . Mechanical Engineering Dept, Johns Hopkins University, Oct. 2010,
17. Mechanical and Aerospace Engineering Dept, George Washington University, April 2010, "Cardiovascular fluid mechanics of arterial stents and left-ventricular diastolic dysfunction".
18. Mechanical and Aerospace Engineering Dept, University of Patras, Greece, May 2009, "Quantitative Visualization, from Multiphase to Cardiovascular Flows"
19. Petroleum Institute, Abu-Dhabi, UAE, May 2009, "Robust Particle Image Velocimetry Estimation, Post Analysis and Applications for Single and Multi-Phase Flows"
20. Mechanical and Nuclear Engineering Dept. Penn State University, March 2009, "Cardiovascular fluid mechanics of arterial stents and left-ventricular diastolic dysfunction: Two cases of translational research"
21. W. M Reed Seminar University of Kentucky, April 2008, "Hemodynamics of coronary stents"
22. Abbott Vascular Advance Research and Development Feb 2008, "Hemodynamic evaluation of commercialized stent designs"
23. Keynote paper, Fluids Engineering Summer Meeting 2007, Forum on Fluid Measurement and Instrumentation, "Time-Accurate Measurement of Pressure From Particle Image Velocimetry Data"
24. Guidant Stent Design R&D Group, Jan 2006 "Cardiovascular Fluid Mechanics Measurements"
25. F. T Ogilvie Annual Lectureship Dept of Mechanical Engineering, MIT, Oct 2005 "Measuring and controlling near wall turbulence"
26. Univ. of Maryland, College Park Dept of Mechanical Engineering, September 2005 "Measuring and controlling near wall turbulence"
27. Brown University, Center of Fluid Mechanics Fall 2004 "Measuring Near Wall Turbulence and Fluctuating Wall Shear Stresses"
28. Caltech, Workshop of Wall shear stress, Feb 2004 "Accuracy of wall shear stress measurements using Particle Image Velocimetry"
29. Virginia Tech, School of Biomedical Engineering , Jan 2004 "On to wall shear stress"
30. Wake Forest University, Dept of Biomedical Engineering, May 2003 "Vortex Dynamics in the Cardiovascular System"
31. Virginia Tech, Dept of Mechanical Engineering, April 2003 "Vortex Dynamics in the Cardiovascular System"
32. Rutgers University, Dept of Mechanical and Aerospace Engineering, Feb 2003 "Vortex Dynamics: From Aerodynamics to Cardiovascular Hemodynamics"

33. Buffalo University (SUNY) Mechanical Engineering Dept, April 2002 "Super Spatio-Temporal Resolution Digital Particle Image Velocimetry Application to Left Ventricular Hemodynamics."
34. Vanderbilt University Mechanical Engineering Dept, April 2002 "Super Spatio-Temporal Resolution Digital Particle Image Velocimetry Application To Left Ventricular Hemodynamics."
35. Virginia Tech Dept of Engineering Mechanics, April 2002 "Application Of Time Resolved Super Resolution Digital Particle Image Velocimetry To Cardiovascular Hemodynamics."
36. Alstom-Power Ltd (former ABB Swiss). Basic Research Group, Zurich, Nov.2000. "Applications Of High Speed Particle Image Velocimetry To Unsteady Vortical Flows".
37. 30th AIAA Fluid Dynamics Conference Invited paper, Norfolk '99 "Unsteady Separated Flows Over 3-D Slender Bodies" WITH Telionis D.P. and Zeiger M. D

PRESENTATIONS AT PROFESSIONAL MEETINGS

Over 250. Contributed prepared and/or delivered the presentation.

GRANTS AND CONTRACTS - SPONSORED RESEARCH

FUNDED RESEARCH SUMMARY:

SPONSORS (PARTIAL LIST):

NSF, NIH, DARPA, AFOSR, AFRL, ARO, ONR, US Navy, NASA, NIST, DOE, American Heart Association, Eli-Lilly, CTSI, Abbott Vascular Systems (former Guidant), Pratt and Whitney, FL Smith Minerals, Clariant, Wake Forest University, Carilion Biomedical Institute, VA Center of Innovative Technologies, Aeroprobe, Techsburg, Discover Technologies, Techsburg,.

During his career (past the PhD) Dr Vlachos has been PI or co-PI in 81 funded research projects.

SUMMARY OF RESEARCH FUNDING:

Funding Category	Total	Personal Portion
Internal	~$3,335,000	~$919,250
External (before 2003)	~$1,546,000	~$983,000
Total Funded Research	**~$42,195,241**	**~$14,477,919**

EXTERNAL FUNDING (ACTIVE)

1. Eli-Lilly-Injectable Biologics: Eli-Lilly, Co-PI: P. Vlachos, amount: YR3: $6,601,300, YR2: $6,415,068, YR1: $3,906,069 (total, 25% share), Renewable for 5 yrs.
2. Miscibility-immiscibility conundrum in air-liquid-vapor flow modeling: Bridging the gap by using the phase-field method PI: Hector Gomez, co-PI P. P. Vlachos, Budget: 359, 655, (50% share) Duration: 09/01/2018 – 08/31/2021
3. Multi Multi-modality 4D Flow MRI data enhancement for quantification of cerebral aneurysms hemodynamics NIH, NINDS R21 NS106696, PI: V.L. Rayz, coPIs, P.P. Vlachos: S. Schnell, M. Markl. Budget: $418,784 total (50% share) Duration: 06/15/2018 – 05/31/2020
4. Plenoptic Particle Image Velocimetry, Sponsor: NSF, PI: B. Thurow (Auburn), Co-PI: P. Vlachos, amount: $ 1,105,207.00 (total, $205,314 share), Duration: 3 yrs.

5. Nanosecond Repetitively Pulsed (NRP) Plasmas: Relationship Between Induced Flow and Plasma Characteristics at Atmospheric Pressure, Sponsor: DOE-NSF, PI: S. Bane, Co-PI: P. Vlachos, amount: $744,679 (total, 20% share), Duration: 3 yrs.
6. Boundary Layer Turbulence Control via Acoustically Resonating Porous Surfaces, Sponsor: NSF, PI: C. Scalo, Co-PI: P. Vlachos, amount: $ 449,788.00 (total), Duration: 3 yrs.
7. Accumulation of particles and organisms in density stratified fluids with applications in algal blooms, Sponsor: NSF, PI: A.M. Ardekani, Co-PI: P. Vlachos, amount: $435,000, Duration: 3 yrs.

INTERNAL FUNDING (ACTIVE)

8. Causally-driven Healthcare Science, Integrative Data Science Initiative, Purdue, PI: Elias Bareinboim, co-PI:Pavlos Vlachos Mohammad Adibuzzaman, $265,000, 06/2018 - 05/2020.

EXTERNAL FUNDING (COMPLETED)

9. Assessing the Growth and Rupture of Cerebral Aneurysms Using 4D PC-MRI and 4D PIV, American Heart Association, PI: P. Vlachos, amount: $53,688.00 (total), Duration: 2 yrs.
10. Long term dynamics of water entry, PI: Sunny Jung, Sponsor: NSF, Funding amount ~$490,000, Duration: 3 yrs.
11. A 3D Co-Culture System for Examining Osteocyte-Osteoblast Interactions and Response to Physical Stimuli Sponsor: NIH-NIAMS PI: Russell Main, CoI: Pavlos Vlachos, amount: $384,879, Duration:2 yrs.
12. Numerical and experimental modeling of multiphase flow through porous media for enhanced-oil-recovery applications, PI: A.M. Ardekani, Co-PI: Pavlos Vlachos, Sponsor: Pioneer Oil Company, amount $109,850, Duration: 1 yr.
13. How do animals harness water entry and exit dynamics, PI: Sunny Jung, Sponsor: NSF, Funding amount ~$510,000, Duration: 3 yrs.
14. IDBR: Development of a method for three-dimensional quantitative analysis of animal flight and stability, PI: PP Vlachos, Sponsor: NSF, Funding amount ~$600,000, Duration: 3 yrs.
15. "Assessment of Left Ventricle Function Using Color M-Mode Echocardiography" , PI: PP Vlachos, Sponsor: NIH, R21, Funding amount ~$420,000, Duration:2 yrs (under no cost extention).
16. Nanoparticle Transport as a function of Physiologic and Hyperthermic Conditions in a 3D Vascularized Microfluidic Tumor Platform, PI: Nichole Rylander, Sponsor: NIH, R21, Funding amount ~$415,000, Duration: 2 yrs.
17. Numerical and experimental modeling of multiphase flow through porous media for enhanced-oil-recovery applications, PI: A.M. Ardekani, Co-PI: Pavlos Vlachos, Sponsor: Pioneer Oil Company, amount $151,899, Duration: 1 yr.
18. Pioneer Oil Projects, PI: Joseph Penki, Sponsor: Pioneer Oil, Funding amount ~$600,000
19. NASA, Nicole Key (PI) An Experimental Investigation of the Flow Physics Associated with End Wall Losses and Large Rotor Tip Clearances as Found in the Rear Stages of a High Pressure Compressor* (participated only during the last 6 months of the project)
20. Novel Tumor Vascular Model for Investigating Tumor Angiogenesis and Cancer Therapies, PI: Nichole Rylander, Sponsor: NIH, R21, Funding amount ~$355,000, Duration: 2 yrs.
21. "IGERT: Multi-Scale Transport in Environmental & Physiological Systems (MultiSTEPS)" PI: M. Stremler et al. (coPI P. P. Vlachos, 5 PIs and 15 Senior Personnel) Sponsor: NSF, Funding amount ~$3,000,000, Duration: 5 yrs.
22. "EFRI-BSBA Complex Microsystem Networks Inspired by Internal Insect Physiology", PI: J. Socha et al., (coPI P. P. Vlachos, 8 coPIs), Sponsor: NSF, Funding amount: $2,000,000 , Duration:4 yrs.
23. Development of PIV uncertainty analysis methods for the MRI facility at INL, PI: PP Vlachos, Sponsor: Idaho National Laboratory (INL), Funding amount ~$135,000, Duration: 2 yrs.

24. (project title proprietary), PI: P P Vlachos, Sponsor: Non-disclosed, Funding amount ~$1,115,000, Duration: 21 mo.
25. "NSF CAREER Graduate student research supplement", PI: PP Vlachos, Sponsor: NSF, Funding amount: $42,000, Duration: 1 yrs.
26. "CAREER: "Arterial flow dynamics: Effects of pulsatility compliance and curvature", PI: PP Vlachos, Sponsor : NSF. Total $400,000. Duration: 5 yrs.
27. "Flotation Modeling and Experiments" PI: R. H. Yoon, et. al. (co-PI PP Vlachos) Sponsor: FLSmith Minerals, Funding amount ~$541,000, Duration: 12 months.
28. "Comparison of Next-Generation Commercial Stent Designs: Experimental and Computational Hemodynamic Evaluation of Stented Artery Flow Patterns" PI: PP Vlachos, Sponsor: Abbott, Funding amount ~$30,000, Duration: 0.5 yrs.
29. "Fundamental Mechanics of Gliding Flight in Snakes" PI: Jake Socha (co-PI PP Vlachos), Sponsor: DARPA, Funding amount $330,000, Duration: 9 months.
30. "Experimental and Computational Studies of A Water Surface Piercing Gas Jet Part-II", PI: PP Vlachos, Sponsor: NWCDD/US Navy, Funding amount $65,000, Duration: 0.5 yr.
31. "Computational and Experimental Studies Of A Water Surface Piercing Gas Jet, Part I" PI: PP Vlachos, Sponsor: NWCDD/US Navy, Funding amount $196,000, Duration: 1 yr.
32. "Robust, High Sensitivity, Dynamic Wall Shear Sensors for Flow Diagnostics" Sponsor NSF, PI: PP Vlachos, Total $250,000, Duration: 3 yrs.
33. "Magnetic Drug Targeting" PI: PP Vlachos, Sponsor: Abbott Vascular Systems, Funding amount: $75,000, Duration: 0.5 yrs.
34. "Computational and Experimental Investigation of the EOTSG-AFW System", PI: D Tafti & PP Vlachos, Sponsor: AREVA, CAER, Funding amount: $160,000 Duration: 1 yrs.
35. "Flow Characterization of Hydrophobic Surface Coatings for Wall Shear-Stress Modification", PI: PP Vlachos, Sponsor: Clariant , Funding amount: $140,000, Duration: 1 yrs.
36. "Left Ventricle Filling hydrodynamic Efficiency as a Predictive Tool for Diagnosing Heart Diastolic Dysfunction", PI: PP Vlachos, Sponsor: Wake Forest School of Medicine, Funding amount $50,000 (Direct only), Duration: 1 yrs.
37. "Development of a comprehensive model for simulation, scale up and design of large flotation machines", PI: RH Yoon, et al. (CoPI P. P. Vlachos, 4 CoPIs), Sponsor: DOE-CAST and FL Smith Dorr Oliver, Funding amount ~$750,000 total, Duration: 2 yrs.
38. "Sand Particle Tracking in Ribbed Channels", PI: PP Vlachos (with K. Thole Penn State), Sponsor:Pratt & Whitney, Funding amount, $40,000,Duration: 1 yrs.
39. "Gas Encapsulation Methods for Payload Deployment", PI: PP Vlachos, Sponsor: DARPA, Funding amount, $250,000, Duration: 1 yrs.
40. "A General Theory for the Effect of Large-Scale Freestream Turbulence on Surface Heat Transfer", PI: TE Diller, PP Vlachos, Sponsor: NSF, Funding amount, $270,000, Duration: 3 yrs.
41. "Validation Of An Active Ionic Polymer Sensor For Dynamic Skin Friction Measurements", PI: PP Vlachos, Sponsor Office of Naval Research SBIR, Funding amount $307,000 (Total SBIR project ~$700,000), Duration: 3 yrs.
42. "Validation Measurements of Metal Rubber Wall Shear Stress Sensor", PI: PP Vlachos, Sponsor: Office of Naval Research, Funding amount $30,000, Duration: 5 months.
43. "MRI: Development of a Spatiotemporal Velocimeter with Simultaneous Size Measurement for Polydispersed Multi-Phase Flows", PI: PP Vlachos K. Thole and C. Dancey, Sponsor: NSF: Major Research Instrumentation, Funding amount: $394,000, Duration: 2 yrs.
44. "Subscale studies of a water surface piercing gas jet-Phase III effort", PI: PP Vlachos, Sponsor: US Navy, Funding amount $70,000. Duration: 0.5 yrs.
45. "Subscale studies of a water surface piercing gas jet-Phase II effort", PI: PP Vlachos, Sponsor:US Navy, Funding amount $99,904. Duration: 1 yrs.
46. "Aerodynamics and flight control of circulation-control rotor disk aircraft", PI: DP Telionis P.P Vlachos and S. A Ragab, Sponsor: DARPA, Funding amount:~$280,000, Duration: 1 yr.

47. "Hemodynamic Evaluation of Stented Artery Flow Pattern: A Comparison of Commercialized Stent Designs", PI: PP Vlachos, Sponsor Abbott Vascular, Funding amount $39,000, Duration: 1 yr.

48. "Structural waveguides for aerodynamic turbulent drag reduction", PI: J Carneal, M. Johnson and P. P. Vlachos, Sponsor AFOSR, Funding amount $40,000, Duration: 1 yr.

49. "Effects of Leading Edge Thin Film Cooling and Surface Roughness on Downstream Film Cooling along a Transonic Turbine Blade for Low and High Free-Stream" Turbulence", PI: W Ng, K Thole and PP Vlachos, Sponsor AFOSR, Funding amount $100,000 ($50K + $50k renewal), Duration: 1 yr.

50. "Foam and Froth Analysis and Modeling.", PI: RH Yoon, , DP Telionis, PP Vlachos, Sponsor: DOE-Center of Advanced Separation Technologies, Funding amount $504,000, Duration: 3 yrs.

51. "Supplement I to "455118" Development and validation of computational model for flotation", PI: PP Vlachos, Sponsor: Dorr Oliver EImco, Funding amount: ~$25,000, Duration: 0.5 yrs.

52. "Development and validation of computational model for flotation", PI: PP Vlachos, DP Telionis, RH Yoon, Sponsor Dorr-Oliver–CAST, Funding amount $45,000, Duration 1 yr.

53. "Supplement to "Development and validation of computational model for flotation", PI: PP Vlachos, Sponsor: Dorr Oliver EImco, Funding amount: ~$13,158 , Duration: 1 yrs .

54. "Flow Control Over Swept, Sharp-Edged Wings": PI: DP Telionis, PP Vlachos, Sponsor: AFOSR, Funding amount: $220,000, Duration: 3 years

55. "Inlet Guide Vanes Flow Control", PI: PP Vlachos, Sponsor: AFOSR-SBIR w/ Techsburg, Funding amount: $100,000, Duration: 2yr.

56. "Flow Control and Vibration Isolation for IMP Quieting", PI: PP Vlachos, Sponsor, ONR-STTR w/ Techsburg, Funding amount: ~$100,000, Duration: 2yr.

57. "Addendum to: Subscale studies of a water surface piercing gas jet", PI: PP Vlachos, Sponsor: US Navy, Funding amount $19,000, Duration: 0.5 yrs.

58. "Subscale studies of a water surface piercing gas jet", PI: PP Vlachos, Sponsor: US Navy, Funding amount $58,000, Duration: 1 yrs.

59. "Testing Effect of Racetrack Air on Wake Fuel" PI: U Vandsburger and PP Vlachos, Sponsor: Pratt & Whitney, Funding amount: $123,000, Duration: 6 mo.

60. "Drag Reduction Performance For A Traveling Wave", PI: PP Vlachos, Sponsor NASA, Funding amount $70,700, Duration: 1 yrs.

61. "Wall Shear Stress Measurements Using Ionic Polymer Transducers", PI: PP Vlachos, Sponsor: ONR SBIR w/ Discover Technologies LLC, Funding amount: $33,000, Duration: 1 yr.

62. "Testing Effect of Racetrack Air on Wake Fuel", PI: U Vandsburger and PP Vlachos, Sponsor: Pratt & Whitney, Funding amount: $128,000, Duration: 6 mo.

63. "Flotation Processes/ Experiments and Analysis", PI: DP Telionis, PP Vlachos, Sponsor: DOE-Center of Advanced Separation Technologies, Funding amount: $190,000, Duration: 2 yrs.

64. "Validation measurements of separated turbulent flows with active flow control", PI:PP Vlachos, Sponsor: Aeroprobe, Funding amount: $70,400, Duration: 8 months.

65. "The Dependence of Particle-Bubble Oscillations on Turbulence", PI: DP Telionis, PP Vlachos, Sponsor: DOE, Center of Advanced Separation Technologies, Funding amount: $38,000 (direct), Duration: 1 yr.

66. "Flow Control Over Swept, Sharp-Edged Wings": PI: DP Telionis and PP Vlachos, Sponsor: AFOSR Funding amount: $60,000, Duration: 1 yr.

67. "Compliance Matching Stents for Minimum Pressure Wave Reflections", PI: PP Vlachos, Sponsor: Carilion Biomedical Institute, Funding amount: $23,000 (direct), Duration: 1 yr.

68. "Quantitative In-Vitro Hemodynamic Analysis of Stented Compliant Vessels", PI: PP Vlachos, Sponsor: American Heart Association, Wake Forest University, Funding amount: $20,000 (direct) Duration: 1 yr

69. "Validation measurements of separated turbulent flows with active flow control", PI: PP Vlachos, Sponsor: Aeroprobe, CIT, Funding amount: $45,000 , Duration: 8 months.

70. "An Omni Directional Roof Pressure Vent", PI: J Jones, D. P. Telionis and P. P. Vlachos, Sponsor: CIT-Acrylife Inc, Funding amount: $45,000, Duration: 6 months.

71. "Frequency and Amplitude Independent Closed-Loop Virtual Aerodynamic Shaping", PI: PP Vlachos and OK Rediniotis, Sponsor: AFOSR-SBIR. Phase-II, Funding amount: $750,000, Duration: 2 yrs.

72. "High Frequency, Time-Resolved Digital Particle Image Velocimetry System For Poly-dispersed Multi-Phase Flows", PI: PP Vlachos (PI), Aeroprobe Corp, Sponsor: NIST, Phase-II SBIR, Funding amount: $300,000, Duration: 2 yrs.

73. "Active Skin for Turbulent Drag Reduction", PI: PP Vlachos (PI) and OK Rediniotis, Sponsor: NASA, Phase-I SBIR, Total Amount: $70,000, Duration: 6 months.

74. "Frequency and Amplitude Independent Closed-Loop Virtual Aerodynamic Shaping", PI: MD Zeiger, PP Vlachos and OK Rediniotis, Sponsor: AFOSR, Phase-I SBIR, Funding amount $100,000, Duration: 9 months.

75. "High-Frequency, Spatio-Temporal, Digital Particle Image Velocimetry System for Combustion-Induced Turbulent Flows": PI: PP Vlachos (PI), Aeroprobe Corp., Sponsor: NIST, Phase-I SBIR. Co-Sponsor CIT, Total Amount: $95,000, Duration: 6 months.

PURDUE INTERNAL FUNDING (COMPLETED)

76. Towing Tank Renovation: DL2 Program, Funding amount ~$2,000,000

VIRGINIA TECH INTERNAL FUNDING (COMPLETED)

77. "ICTAS Center MBEDS (Multiscale Bio-engineered Devices and Systems", PI: PP Vlachos and R. Davalos, Sponsor: VT ICTAS, Funding amount: ~$375,000, Responsibility: ~50%, Duration: 5 yrs.

78. "Microfluidic Devices Inspired by Internal Insect Physiology", PI: J. Socha et. al., Sponsor: VT ICTAS , Funding amount: ~$300,000, Duration: 3 yrs.

79. "ICTAS Theme Area on non Invasive Cardiovascular Diagnostics", PI: PP Vlachos (with 6 co-PIs), Sponsor: VT ICTAS, Funding amount: ~$250,000, Responsibility:~15%, Duration: 18 mo

80. "Spatiotemporal dynamic microfluidic measurements ", PI: PP Vlachos, Sponsor: ASPIRES Funding amount: $90,000, Duration: 2 yrs

81. "A High Speed DPIV System For Multi-Phase Flows" PI: DP Telionis. M. Hajj, AH Nayfeh and PP Vlachos, Sponsor: ASPIRES: Funding amount: $55,000, Duration: 6 months. Teaching

COURSES TAUGHT

PURDUE UNIVERSITY

Undergraduate

Fluid Mechanics (ME 309), 4 Credits:

Fall 2013, Spring 2014, Fall 2014, Spring 2015, Fall 2015, Fall 2016, Fall 2017 (Lab), Spring 2018 (Lab), Fall 2018 (Lab), Spring 2019 (Lab), Fall 2019 (Lab)

Graduate (3 credit)

ME597 Experimental Fluid Mechanics, Spring 2016, 2017

VIRGINIA TECH

Undergraduate (3 credit)

Fluid Mechanics, Thermodynamics, Introduction to Thermofluids, Engineering Design, Undergraduate research.

Graduate (3 credit)

Biofluids, Fluid Mechanics, Experimental Fluid Mechanics, Advanced Methods in Experimental Fluid Mechanics, Interdisciplinary Research

COURSES DEVELOPED OR REVISED

ME309 Fluid Mechanics (Purdue)

Between Fall 2014 and Fall 2019, completely overhauled the entire experimental sequence of the class. The improvements included, development of new experiments, re-design and modernization of the experimental instrumentation, rewriting of the lab-manuals and procedures, developing new lecture recitations, grading rubrics and well-structured procedures for quality control of student evaluation and feedback. In addition, the lecture component of the class was augmented with over 50 video recordings of example problems and video recordings of the lab procedures.

ME597/ME5984: Experimental Fluid Mechanics (Purdue/Virginia Tech)

Advanced fluids instrumentation and methods, optical diagnostics techniques, digital signal and image processing, data analysis and visualization are introduced. This course puts emphasizes the basics and fundamentals of the most popular experimental fluids methods with sufficient background on instrumentation and signal processing. The course targets junior lever graduate students and is introducing them to the basics of experimental design and experimental fluid mechanics measurements in addition to a short introduction of philosophy of science and hypothesis testing. The course was first developed and taught at Virginia Tech. Upon joining Purdue, it was revise and introduced at Purdue.

GRAD5154: Interdisciplinary research (Virginia Tech)

Co-developed a new course for the interdisciplinary graduate education program, investigating the principles, practices, implications and limitations of interdisciplinary research. The course adopts a liberal-arts teaching model, driven by discussion, focusing on argument formation and refutation. Assignments are aimed towards the formulation of simple research objectives emanating from complex problems such as grand challenges and development of research plans and representative research proposals.

ME6984: Advanced Methods in Experimental Fluid Mechanics (Virginia Tech)

Developed a course for the ME senior lever graduate students introducing state-of-the-art tools for experimental fluid mechanics measurements. Advanced instrumentation and methods, optical diagnostics techniques, digital signal and image processing, data analysis and presentation are addressed. The assignments within this class are primarily focused towards exposing the students to the various aspects of the research procedure through the specialization on advanced experimental methods for fluid mechanics. Namely, teaching, proposal writing, reviewing, conducting the research and continuously been evaluated by your peers as these are the intrinsic ingredients of the research enterprise. The students submit research proposals conduct insightful experiments and disseminate their results in a paper/presentation final project to their peers (class) in an attempt to simulate in the classroom the research/academia life environment.

SBES/ME/ESM 4984/5984: Cardiovascular Fluids Mechanics (Virginia Tech)

The students taking this course will be able to define and analyze physical fluid mechanics problems involving the cardiovascular system. This will involve manipulating the full Navier Stokes equations, incorporate additional necessary constitutive relations and by performing the appropriate assumptions and posing the required initial and boundary conditions result to a tractable problem that can be modeled analytically experimentally or numerically. The course will be offered to both senior undergraduate and graduate students. The material covered will be the same. However homework assignments and project assignments will be adjusted to reflect the student's level. For graduate level students, additional homework and projects that further the in-depth analysis and synthesis capability of the student it will be required.

ME3404: Fluid Mechanics (Virginia Tech)

In the Spring of 2004 the concept of in-class demonstrations was introduced. Fluid mechanics education is often hampered by the lack of direct physical observation and intuition by the students. The "in-class demonstration" assignment aims to trigger imagination, increase student participation and interaction and provide a hands-on, fluid mechanics experience. During the in-class demo assignment the students working in groups of three are asked to design and perform a zero budget short (5-10min) demonstration of a fluid mechanics principle. The demonstration is accompanied by an electronically submitted 1 page report.
In Fall of 2006, the in class demo assignment was reintroduced in a larger section fluids class (>80 students). The success of the assignment was assessed using a survey that indicated a positive response from the students.
In Fall 2006 the use of Tablet PC's for the instruction of a large fluids section was introduced. The instruction was designed to be a combination between pre-prepared PowerPoint slides and hand writing notes on the TabletPC screen in replacement of the traditional blackboard. Interactive exercises are explored and several multimedia resources are used to enhance the learning experience. Pre and post assessment surveys suggest that this method of instruction was more effective than the traditional approaches.

QUALIFYING EXAMS

Purdue University

Fluid Mechanics and Propulsion Area exam, Spring 2014, Fall 2014, Fall 2016
Biomedical Engineering Quantitative Literature Assessment, Fall 2014

Virginia Tech

1. Mechanical Engineering Fluid Mechanics Spring '04, '06, '09 and Fall '05 '07 '08
2. School of Biomedical Engineering and Sciences '05-'11.

STUDENT EVALUATIONS OF INSTRUCTION (ONLY MAJOR COURSES):

Purdue University

Solberg award citation for instruction: 2015, fall semester; 2016, spring semester; 2017 spring semester, (voted at the top 10 best instructors by the Purdue School of Mechanical Engineering undergraduate students)

Course	Term	Median Rating
ME309	Fall 2013	4.2
ME309	Spring 2014	4.4
ME309	Fall 2014	4.2
ME309	Spring 2015	4.4
ME309	Fall 2015	4.6
ME309	Fall 2016	4.7
	Total	4.4/5.00

Virginia Tech

Across all years and across all major courses, graduate and undergraduate average rating = 3.8/4

DEVELOPMENT AND TEACHING EFFECTIVENESS

- Sept 15-18 2004: Participated in the ASME sponsored workshop, Excellence in Engineering Education (ExcEED) Faculty Teaching Workshop at Northeastern University September 16-18, 2004. This three-day intensive workshop (formerly called Essential Teaching Seminars) is co-sponsored by ASME, ASCE, AIChE, and IEEE. This workshop enhanced my art and craft of teaching, and increased my repertoire of techniques.
- Teaching Workshops:
  - Summer of 2006 I attended two Faculty Development Institute (Virginia Tech-FDI) seminars, first on Mathematica and second on LabView in order to incorporate these tools in my graduate level courses.
  - Summer of 2009 I attended a series of FDI workshops for the implementation of Scholar web environment within my teaching and graduate advising practices
  - Summer of 2009 I attended a workshop for JMP statistical package in order to incorporate these tools in my graduate level courses.
  - Fall 2006: Two instructional interventions were implemented for the Fluid Mechanics class. The instructional impact of both attempts was assessed by an end-of-semester survey. Some representative results are shown below. First, TabletPC instruction was introduced as a hybrid teaching tool, enhanced with multimedia resources (movies/pictures). Second intervention involved a formalized voluntary team assignment where the students were asked to choose a fluid mechanics principle taught during the semester and design, execute, present and report a *"zero-budget"* in-class demonstration. Approximately 60% of the students participated in this exercise. Based on the results of a follow up assessment survey both attempts were successful. These two concepts will be revisited and revised and will be implemented again in future semesters.

GRADUATE RESEARCH SUPERVISION

SUMMARY OF GRADUATE STUDENT SUPERVISION:

Completed PhD:	18
Completed MS:	29
Current PhD	13
Current MS	0
Current Committee member PhD/MS	14

POST DOCTORAL FELLOWS AND RESEARCH SCIENTISTS

CURRENT

1. Sayantan Bhattacharya (Purdue, 2019-present)
2. Melissa Brindise (Purdue, 2019-present)
3. Zhongwang Duo (Purdue, 2019-present)
4. Kevin Buno (Purdue, 2019-present)

PAST

5. Anna Elodie Kerlo, (Purdue University, 2014-2015)
6. Michal Kotak, (Purdue University, 2014)
7. John J Charonko (Virginia Tech, 2011-2013)
8. Christopher J Weiland (Virginia Tech, 2011)

PHD DISSERTATIONS DIRECTED

1. Soroush Aramideh, Purdue Graduation Fall 2019, "Complex Fluids in Porous Media: Pore-Scale to Field-Scale Computations"

2. Sayantan Bhattacharya, Purdue Graduation Fall 2019, "Uncertainty Quantification in Particle Image Velocimetry"

3. Melissa Brindise, Purdue Graduation Fall 2019, "Developing Experimental Methods and Assessing Metrics to Evaluate Cerebral Aneurysm Hemodynamics"

4. Mathew Giarra Virginia Tech, Graduation Fall 2016, "The Signal in the Noise: Understanding and Mitigating Decorrelation in Particle Image Velocimetry"

5. Elizabeth (Voigt) Antoine, Virginia Tech, Graduation Summer 2014, "Mechanics and transport characterization of bioengineered tissue microenvironment platforms"

6. Jaime Raben Virginia Tech, Graduation Summer 2013, "Improvements in fluidic device evaluation using particle image velocimetry"

7. Samuel Raben Virginia Tech, Graduation Summer 2013, "Determination of three-dimensional time-varying flow structures"

8. Kelley Stewart, Virginia Tech, Graduation Spring 2011, "Hydrodynamics of Cardiac Diastole"

9. David Hubble, Virginia Tech, Graduation Spring 2011, "An experimental investigation of the mechanism of heat transfer augmentation by coherent structures" (co-chaired with Prof. Thomas Diller, Mechanical Engineering Dept. Virginia Tech)

10. Nickolas Cardwell, Virginia Tech, Graduation Fall 2010, "Investigation of Particle Trajectories for Wall Bounded Turbulent Two-Phase Flows" (co-chaired with Prof. Karen Thole, Mechanical and Nuclear Engineering Dept. Penn State University)

11. Chris Weiland, Virginia Tech, Graduation Spring 2010 Title: "Dynamics of the High-Speed Gas liquid Interfaces"

12. Michael R. Brady, Virginia Tech, Graduation Fall 2009 Title: "Multiphase Hydrodynamics in Flotation Systems"

13. Karri Satya Prakash, Virginia Tech, Graduation Fall 2009 Title: "Laminar and Transitional Flow Disturbances in Diseased and Stented Arteries"

14. John Charonko, Virginia Tech. Graduation Spring 2009 Title: "Studies of Stented Arteries and Left Ventricular Diastolic Dysfunction Using Experimental and Clinical Analysis and Data Augmentation"

15. Andrew Gifford, PhD Graduation Spring 2009 Title: "The Physical Mechanism of Heat Transfer Augmentation in Stagnating Flows Subject to Freestream Turbulence and Related Studies" (co-chaired with Prof. T. Diller Mechanical Engineering)

16. Alicia Williams Virginia Tech. PhD Graduation Fall 2008 Title: "The Hydrodynamics of Ferrofluid Aggregates"

17. Olga Pierrakos, Virginia Tech. PhD Graduation Spring 2006. Title: "Vortex Dynamics of Left Ventricular Flows"

18. Ali Etebari, Virginia Tech. PhD Graduation Spring 2006 Title: "Wall Shear Stresses in Cardiovascular Flows"

MS THESES DIRECTED

1. Harris Syed Hassan, "Entrainment in a free surface plunging jet" Fall 2015

2. Tianqi Guo "Axisymmetric wall jet development in confined jet impingement" Spring 2016

3. Natalya Vorobtsova, "Effects of vessel tortuosity on coronary hemodynamics: an idealized and patient-specific computational study" Fall 2014

4. Tyler Michael, "Design and Evaluation of Portable Hydro Electric Energy Harvesting Platforms", Fall, 2014

5. Brett Meyers, "Feasibility of Echocardiographic Particle Image Velocimetry for evaluation of cardiac left ventricular filling function", Fall, 2014

6. Zhenyu Xue, "Signal to noise ratio, uncertainty and error estimation for particle image velocimetry", Fall, 2014

7. Cassie Niebel "Dispersive Characteristics of Left Ventricle Filling Waves" Fall 2012

8. Drew Brady "Entrainment characteristics of turbulent round jets submerged in water" Summer II 2011.

9. Justin Dominic, "Experimental Study of Wall Shear Stress Modification by Surface Coating: Pressure Drop Measurements in a Rectangular Channel" Summer I 2011

10. Daniel Holden, "Flying snakes: Aerodynamics of body cross-sectional shape" Spring 2011, (co-chaired with Prof. Jake Socha, Engineering Science and Mechanics Dept. Virginia Tech)

11. Daniel Cooper, "Feasibility of Passive Acoustic Detection of Coronary Artery Disease Utilizing Source Separation", Dec 2010.

12. Elizabeth Voigt, "Hydrodynamic Characterization of an Arterial Flow Bioreactor" Virginia Tech, Jul. 2010

13. Kelley Steward, "A Color M-Mode Echocardiogram Investigation of the Hydrodynamics of Left Ventricular Diastolic Dysfunction", Virginia Tech, Oct. 2008

14. David Griffiths, "Development of Ionic Polymer Metallic Composites as Sensors", Virginia Tech, Sept. 2008

15. Sam Raben, "Near wall high resolution particle image velocimetry and data reconstruction for high speed flows" Virginia Tech, May 2008

16. Adric Eckstein, "Development of Robust Correlation Algorithms for Image Velocimetry Using Advanced Filtering" Virginia Tech Dec 2007

17. Alicia Williams, "Mixing at Low Reynolds Numbers by Vibrating Cantilevered Ionic Polymers" Virginia Tech May 2007

18. Hugh Hill, "2D CFD Simulation of a Flow Control Inlet Guide Vane" Virginia Tech. Jan 2007

19. Chris Weiland, ”Modification of Blade-Vortex Interactions Using Leading Edge Blowing” Virginia Tech. Dec 2006
20. Jerrod Ewing. “Development of a New Direct Measurement Thin-Film Heat Flux Array” Virginia Tech Dec 2006
21. Michael Brady, “Novel, Subpixel Resolution Schemes For Particle Sizing and Particle Tracking Velocimetry” Virginia Tech, Nov 2006
22. Vassilis Vlachakis, Turbulent Characteristics in a Rushton Stirring Vessel: A Numerical Investigation. Virginia Tech, July 2006
23. John Charonko, “A Nondimensional Scaling Parameter for Predicting Pressure Wave Reflection in Stented Arteries” Virginia Tech March 2005
24. Mian Hussain, “Time-Resolved Analysis of Circulation Control over Supercritical Airfoil using Digital Particle Image Velocimetry (DPIV)” Virginia Tech Dec 2004
25. Jason Carneal, “Integration and Validation of Flow Image Quantification (Flow-IQ) System” Virginia Tech. Sept 2004.
26. Saami Yazdani, “Complex Flow Patterns In Stented and Bifurcating Arteries” Virginia Tech Nov 2003.
27. Claude Abiven, “A Hybrid Dynamically Adaptive, Super Spatio-Temporal Resolution Digital Particle Image Velocimetry Technique For Multi-Phase Flows”. Virginia Tech 2002.
28. Ali Etebari, “Development of a Virtual Scientific Visualization Environment for the Analysis of Complex Flows” Virginia Tech 2002.
29. Olga Pierrakos “Hemodynamic Flow Characterization of St. Jude Medical Bileaflet Mechanical and Biological Heart Valve Prostheses in a Left Ventricular Model via Digital Particle Image Velocimetry” Virginia Tech 2002

POSITIONS HELD AND SPECIAL ACHIEVEMENTS BY ADVISEES

(First appointment post-degree, or most up to date position if known)

1.	Abiven Claude,	MS	Shell
2.	Brady Michael	PhD, MS	Lincoln Labs,
3.	Carneal Jason	MS	Engineer NSWC Carderock Division
4.	Cardwell Nick	PhD	Senior Research Scientist, Novartis
5.	Charonko John	PhD, MS	Los Alamos National Laboratory
6.	Cooper Daniel	MS	PhD Graduate Student, ME Virginia Tech
7.	Eckstein Adric	MS	Engineer, Analyst, Mitre Corp.
8.	Etebari Ali,	PhD, MS	Research engineer, NSWCCD.
9.	Ewing Jerrod	MS	Engineer Siemens-Westinghouse
10.	Giarra Matthew	PhD	JHU, APL
11.	Gifford Andrew	PhD	Research engineer NSWCDD NAVY.
12.	Griffiths David	MS	Research engineer, NSWCDD NAVY.
13.	Hill Hugh	MS	Siemens Westinghouse
14.	Holden Daniel	MS	Engineering, Roanoke
15.	Hubble David	PhD	Instructor, Virginia Tech
16.	Hussain Mian	MS	Boeing Seattle, WA
17.	Karri Satya	PhD	Vivitro

18.	Pierrakos Olga	PhD, MS	Associate Professor, James Madison University
19.	Raben Sam	MS	Ford Post Doctoral Fellow, Georgia Tech
20.	Steward Kelly,	PhD, MS	Research engineer NSWCDD NAVY
21.	Vlachakis Vassilis	MS	PhD Graduate Student, ESM Virginia Tech
22.	Antoine Elizabeth	PhD, MS	Post Doctoral Fellow, Ecole Poly. Paris.
23.	Weiland Chris	PhD, MS	Research engineer NSWCDD NAVY
24.	Williams Alicia ,	PhD MS	Sandia National Labs
25.	Yazdani Saami,	MS	Assistant Professor, Un. Of South Alabama
26.	Cassie Niebel	MS	R&D Engineering Cook Medical
27.	Ben Jackson	MS	Raytheon

Special achievements of advisees

1. Sayantan Bhattacharya, PhD, graduate advisee 2013-present
   a. Estus H. and Vashti L. Magoon Award for Excellence in Teaching for 2018
   b. Ward A. Lambert Graduate Teaching Fellowship for Spring-Fall 2017
   c. The 2018 Summer Research Grant for the School of Mechanical Engineering
2. Melissa Brindise, PhD, graduate advisee 2014-present
   a. American Heart Association Pre-Doctoral Fellowship for 2017
   b. Estus H. and Vashti L. Magoon Award for Excellence in Teaching for 2018
   c. Ward A. Lambert Graduate Teaching Fellowship for Fall-Spring 2017-2019
   d. The 2017 Summer Research Grant for the School of Mechanical Engineering
3. Elizabeth Antoine (Voigt), MS/PhD, graduate advisee 2008-2012
   a. DOD graduate student fellowship (declined)
   b. Claire Luce Booth Graduate Fellowship
   c. Fulbright (1 year in TUD)
   d. ICTAS Scholar (declined)
   e. NASA Space Grand, 2010, 2011
   f. 2011 Paul E. Torgersen Graduate Student Research Excellence Award 1st Place MS Poster Presentations
   g. Whitaker Foundation international post-doctoral fellowship
4. Beasley Beverly, undergraduate advisee 2002-2004,
   a. National Science Foundation Graduate Fellowship
5. Belden Jesse undergraduate advisee 2004-2006
   a. 1st place 2005 Virginia Tech undergraduate research symposium. Currently graduate student at ME and Ocean Engineering Dept, MIT.
6. Brady Michael, undergraduate and graduate advisee 2000-2009,
   a. ESM Dan Pletta award for Best Senior Design 2001
7. Charonko John, undergraduate and graduate advisee 2001-2009,
   a. 2008 Paul E. Torgersen Graduate Student Research Excellence Award 3rd Place PhD Presentations
   b. 1 of only 6 graduate students to represent Virginia Tech to the Commonwealth's Governor and Legislators for the annual graduate education forum.
   c. Paul E. Torgersen Graduate Student Research Excellence Award 3rd Place MS Posters

d. ESM Dan Pletta award for Best Senior Design Award 2002
e. Graduated as top (4.0) in the College of Engineering.

8. Cooper B. Daniel
   a. 2010 Paul E. Torgersen Graduate Student Research Excellence Award 1st Place MS Poster Presentations
9. Drew Brady
   a. 2011 Paul E. Torgersen Graduate Student Research Excellence Award 1st Place MS Presentations
10. Eckstein Adric undergraduate and graduate advisee 2005-2008
    a. 2008 Paul E. Torgersen Graduate Student Research Excellence Award 3rd Place MS Poster Presentations
    b. Outstanding Paper in Fluid Mechanics Award, Measurement Science and Technology, 2009
11. Etebari Ali undergraduate and graduate advisee 1999-2005
    a. Paul E. Torgersen Graduate Student Research Excellence Award 1st Place PhD Posters
12. Niebel Cassie, graduate advisee 2010-present,
    a. National Science Foundation Graduate Fellowship
    b. NASA Space Grand 2011
13. Karri Satya Prakash graduate advisee 2005-2009
    a. 2008 Paul E. Torgersen Graduate Student Research Excellence Award 2nd Place PhD Presentations
14. Peter Stephen, undergraduate advisee 2007-2008
    a. 2008 Mechanical Engineering Outstanding Scholar, David R. Shorb Memorial Honor Award.
15. Pakdel Zhara, undergraduate advisee 2004-2005,
    a. National Science Foundation Graduate Fellowship
16. Pierrakos Olga, undergraduate and graduate advisee 1999-2005,
    a. NSF CAREER Recipient
    b. NAE Postdoctoral fellowship
    c. Advance Fellowship (2004-2005).
    d. Paul E. Torgersen Graduate Student Research Excellence Award 2005 2nd Place PhD Presentations
    e. SBES 2005 Annual Grad Student Symposium
    f. GE Fellowship (2002-2004)
    g. P.E.O. Scholar, Idagrace Guy Endowed Scholar (2003-2004) Nominated International Award, only 10% of applicants selected
    h. Graduate Teaching Assistant Commendation Award (2005)
17. Raben Sam undergraduate and graduate advisee 2005-present
    a. 2008 Paul E. Torgersen Graduate Student Research Excellence Award 2nd Place MS Poster Presentations
    b. 1st place 2005 Virginia Tech undergraduate research symposium
18. Stewart Kelley, graduate advisee 2006-present
    a. Fall 2008 Commencement Ceremony Graduate Student Speaker
    b. 2008 Paul E. Torgersen Graduate Student Research Excellence Award 1st Place MS Poster Presentations

c. National Science Foundation Graduate Fellowship

19. Williams Alicia, undergraduate and graduate advisee 2004-2008
    a. National Science Foundation Graduate Fellowship
    b. 2007 ASME Fluids Engineering Division Moody Award
20. 2008 Best Senior Design Project-Stent Design Team (7 undergraduate students)

DISSERTATIONS AND THESIS IN PROGRESS

PHD STUDENTS

Purdue University (* students co-adviced)

1.	Sheyashi Chakraborty,	Title TBA,	Qualifying Completed, Prelim completed
2.	Brett Mayers,	Title TBA,	Qualifying Completed
3.	Brian Jun,	Title TBA,	Qualifying Completed, (*)
4.	Jiacheng Zhang,	Title TBA,	Qualifying Completed
5.	Lalit K. Rajendran,	Title TBA,	Qualifying completed, (*)
6.	Tianqi Guo,	Title TBA,	Qualifying completed, (*)
7.	Adib Ahmadzadegan,	Title TBA,	Qualifying completed, (*)
8.	Javad Eshraghi,	Title TBA,	Qualifying completed
9.	Anastasiia Vasiukhina	Title TBA (*)	
10.	Tanya Purwar	Title TBA	
11.	Ionna Katsamba	Title TBA (*)	
12.	Alexander Alberts	Title TBA (*)	
13.	Derakhshandeh, Rozhin	Title TBA	

PROFESSIONAL ACTIVITIES

ENTREPRENEURIAL ACTIVITIES

Startups

- Founder and CEO, Cordian Technologies Inc
    i. This startup aims to develop and commercialize echocardiography analysis technologies to facilitate a more robust and accurate diagnosis and management of heart failure.

EDITORIAL ACTIVITIES

Editorial Boards

- Associate Editor, International Journal of Multi-phase Flows (Elsevier) (2017-current)
- Associate Editor, ASME Journal of Fluids Engineering (completed 4 year tenure)
- Reviewer for the National Academies of Engineering

Journal Reviewer (selected)

1. AIAA Journal,
2. American Journal of Physiology
3. Annals of Biomedical Engineering,
4. Artificial Organs,
5. ASME Journal of Biomechanical Engineering,
6. ASME Journal of Fluids Engineering,
7. Biomechanics and Modeling in Mechanobiology,
8. Biorheology,
9. Cardiovascular Engineering and Technology,
10. Circulations: Heart Failure,
11. Experiments in Fluids,
12. Experimental Thermo-Fluid Sciences,
13. International Journal of Multi-Phase Flows,
14. International Journal of Heat and Fluid Flow,
15. Journal of the American College of Cardiology,
16. Journal of the American College of Cardiology: Imaging,
17. Journal of Atomization,
18. Journal of Applied Mechanics,
19. Journal of Biomechanics,
20. Journal of Biorheology,
21. Journal of Engineering Mechanics,
22. Journal of Fluids Engineering,
23. Journal of Fluid Mechanics,
24. Journal of Fluids and Structures,
25. Journal of Heat and Fluid Flow,
26. Journal of Heat Transfer,
27. Journal of Medical Devices,
28. Journal of Non-Linear Dynamics,
29. Journal of Physics D: Applied Physics,
30. Journal of Fluid Mechanics,
31. Journal of Thermophysics and Heat Transfer
32. IEEE Transactions of Industrial Electronics,
33. Measurement Science and Technology,
34. Medical & Biological Engineering and Computing,
35. Medical Engineering and Physics,
36. Micro-Nano-Fluidics,
37. Nature Communications,
38. Physics of Fluids,
39. Proceedings of the Royal Society Interface,
40. Sensors,
41. Science

PROFESSIONAL SOCIETIES

- RSNA, Radiological Society of North America
- AHA, American Heart Association
- AAAS American Association for the Advancement of Science
- ASEE American Society of Engineering Education
- ASME (American Soc. of Mech. Eng.)
    - Fluids Engineering Division.
    - Bio-Engineering Division.

- APS (American Physics Society), Fluids Dynamics Division
- AIAA (American Inst. of Aeronautics and Astronautics).
- Technical Chamber of Greece.

TECHNICAL COMMITTEES

- APS (American Physics Society) Nominating Committee (2018-present)
- APS (American Physics Society) Media & Science Relations Committee (2016-2018)
- APS (American Physics Society) Fluid Dynamics Division, Acrivos Award Selection Committee (2014-2016)
- ASME Fluids Engineering Division, Fluid Measurement and Instrumentation Technical Committee 2008-present, member since 2000.
    - Vice chair, 2008-2010
    - Chair 2010-2012
- ASME Fluids Engineering Division, Fluid Mechanics Technical Committee 2000-present
- ASME Fluids Engineering Division, Multiphase Flows Technical Committee 2000-present
- ASME Bioengineering Division, Biofluids Technical Committee 2001-present

PROPOSAL PANELIST

- NASA Biofluids (S04), Panel Reviewer
- NSF CTS Hydraulics and Fluid Dynamics, Biofluids panel reviewer 2006.
- NSF CBET MRI panel reviewer 2007.
- NSF CBET CAREER panel reviewer 2007.
- MIT Sea Grant Consortium reviewer 2009
- NSF SBIR Biomedical Devices Panel I 2009
- NSF SBIR Biomedical Devices Panel I 2010
- NIH Scientific reviewer, Atherosclerosis and Inflammation of the Cardiovascular System Study Section, 2010
- NSF SBIR Biomedical Devices Panel I 2011 (spring)
- NSF SBIR Biomedical Devices Panel II 2011 (fall)
- American Heart Association (National) Spring 2013
- American Heart Association (National) Fall 2013
- NSF CBET CAREER panel reviewer 2013
- American Heart Association (National) 2012-present
    - Vice Chair, Bioengineering Clinical Research review committee, American Heart Association 2013-2015
    - Chair, Bioengineering Clinical Research review committee, American Heart Association 2016-2018
- NIH, Bold New Bioengineering Methods for Heart, Lung, Blood and Sleep Disorders and Diseases, Fall 2017 Panel

TENURE AND PROMOTION DOSSIERS US AND GLOBAL UNIVERSITIES

1. Brigham Young University
2. Cornel University
3. Georgia Tech
4. Northwestern School of Medicine
5. Ohio State University
6. Rutgers University
7. Technion University (Israel)
8. Trinity College, Dublin (Ireland)

9. TU Delft (Netherlands)
10. University of Bristol (UK)
11. University of Florida
12. University of Ioannina (Greece)
13. University of Minnesota
14. University of Missouri
15. University of New Hampshire
16. University of Tel-Aviv (Israel)
17. University of Thessaly (Greece)
18. Utah State University
19. Virginia Tech

CONFERENCE/SYMPOSIA ORGANIZATION (PARTIAL LIST - SELECTED)

- 2019 Symposium on Particle Image Velocimetry, International Organizing Committee
- SES 2014, Organizing Committee and session organizer
- 4th Particle Image Velocimetry Challenge (2014) Workshop, (co-organizer)
- Inspired and co-organized the Annual Virginia Tech Fluid Mechanics symposium since 2006-2012.
- Workshop/tutorial on Particle Image Velocimetry (3 day/40 attendees), University of Maryland, May 2012
- 1st PIV uncertainty workshop: Inspired and co-organized the first PIV uncertainty workshop with international attendance (May 2011).
- Co-organized the first focused session in the DFD APS meeting 2011 on PIV uncertainty
- Co-organized the a mini-symposium on Cardiac Fluid Mechanics with clinical translational focus, at the APS DFD meeting 2011.
- Mini-symposium Co-organizer: Cardiac Fluid Dynamics: Translating Fundamental Insights into Clinical Practice, APS, DFD 2011
- Symposium organizer, Measurement and Instrumentation Forum AJK Summer Meeting, Hamamatsu, Japan 2011.
- Symposium organizer, Fundamentals and Perspectives in Fluid Mechanics AJK Summer Meeting, Hamamatsu, Japan 2011.
- 1st PIV Uncertainty Workshop, co-organized with B. Smith (USU) and Hugh Mcelroy (DOE-INL).
- Symposium on Diagnostics in Thermofluid Systems, organizer, ASME IMECE, Vancouver, Canada 2010.
- Session chair, Measurement and Instrumentation Forum, ASME Fluids Engineering Summer Meeting, Montreal, Canada 2010.
- Symposium organizer, Measurement and Instrumentation Forum ASME Fluids Engineering Summer Meeting, Montreal, Canada 2010.
- Session chair, Fundamentals and Perspectives in Fluid Mechanics Symposium, ASME Fluids Engineering Summer Meeting, Montreal, Canada 2010.
- Symposium organizer, Fundamentals and Perspectives in Fluid Mechanics ASME Fluids Engineering Summer Meeting, Montreal, Canada 2010.
- Session chair, APS, FDD Minneapolis, MN, Nov 2009
- Session chair, Measurement and Instrumentation Forum, ASME Fluids Engineering Summer Meeting, Veil, CO 2009.
- Symposium organizer, Measurement and Instrumentation Forum ASME Fluids Engineering Summer Meeting, Veil, CO 2009.
- Session chair, Fundamentals and Perspectives in Fluid Mechanics Symposium, ASME Fluids Engineering Summer Meeting, Veil, CO 2009.

- Symposium organizer, Fundamentals and Perspectives in Fluid Mechanics ASME Fluids Engineering Summer Meeting, Veil, CO 2009.
- Session chair, Fundamentals and Perspectives in Fluid Mechanics Symposium, ASME Fluids Engineering Summer Meeting, Jacksonville, FL 2008.
- Symposium organizer, Fundamentals and Perspectives in Fluid Mechanics ASME Fluids Engineering Summer Meeting, Jacksonville, FL 2008.
- Session chair, APS, FDD Salt Lake City, UT, Nov 2007
- Session chair, Measurement and Instrumentation Forum ASME Fluids Engineering Summer Meeting, San Diego, CA 2007.
- Session chair, Fundamentals and Perspectives in Fluid Mechanics Symposium, ASME Fluids Engineering Summer Meeting, San Diego, CA 2007.
- Symposium organizer, Fundamentals and Perspectives in Fluid Mechanics ASME Fluids Engineering Summer Meeting, San Diego, CA 2007.
- Symposium organizer, Fluids Engineering Summer Meeting, Miami, FL 2006.
- Symposium organizer, Fluids Engineering Summer Meeting, Houston, TX 2005.
- Session chair, Fluids Engineering Summer Meeting, Houston, TX 2005.
- Session chair, Fluids Engineering Summer Meeting, Charlotte, NC, July 2004.
  Session chair, Summer Bioengineering Meeting, Veil, CO, July 2004

ACADEMIC SERVICE

Purdue University

- Presidents Fellow for research development, 2018-present, Office of the Executive Vice President for Research
- Area Chair, Fluids Mechanics and Propulsion, 2014-2017
- Mechanical Engineering Leadership Team, 2014-2017

Committees

- School of Mechanical Engineering Primary Committee, 2013-present
- ME Instructional Labs Committee, 2014-present
- ME Global Engagement Committee, 2014-present
- BME Qualifying Exam Committee, 2014-present
- Strategic Planning Committee 2016-2018
- Graduate Application Review Committee 2013-2017
- Faculty Search Committee, 2013-2014
- Program Internal Review Committee, 2014
- Chair Faculty Search Committee (Thermofluids), 2014-2015

Virginia Tech

- University Committee for Reconciliation, 2011-2013
- Promotion and Tenure Committee, Member, Dept. of Mechanical Engineering, 2011-2013
- Faculty Senate, Mechanical Engineering Dept. Representative, 2010-2013
- Promotion and Tenure Committee, Member, School of Biomedical Engineering and Sciences, 2010-2013

- Member, Research and Graduate Education Strategic Planning Committee, Mechanical Engineering, 2010-2013
- Member, Graduate Student Recruitment Committee, Mechanical Engineering, 2009-2013
- Member Faculty Search Committee 2010-2011 Engineering Science and Mechanics (two positions)
- Member, Faculty Activity Report Evaluation Committee, Mechanical Engineering, 2009-2010
- Member, Fiscal, Management and Administrative Strategic Planning Committee, Mechanical Engineering, 2009-present
- Co-Chair, 2007-2008 Faculty Search Committee, Mechanical Engineering (6 positions, 5 hired, 1 minority, 1 endowed)
- Member Department Head Search Committee 2007-2008 Aerospace and Ocean Engineering
- Chair 2006-2007 Faculty Search Committee, area Turbomachinery, Mechanical Engineering (1 position, 1 hire)
- Member DCR Committee 2004-2005, Mechanical Engineering
- Chair 2006-2007 Faculty Search Committee, area Combustion, Mechanical Engineering (1 position offered, successfully hired 2 candidates, one of which a minority)
- Member Faculty Search Committee 2004-2005 Mechanical Engineering
- Member Graduate Committee 2004-2007 School of Biomedical Engineering and Sciences