

Curriculum Vitae

(Last update: 10/11/2024)

Huidan (Whitney) Yu

Professor of Mechanical Engineering
Purdue University in Indianapolis

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Google Scholar: <https://scholar.google.com/citations?user=UG9NYeEAAAAJ&hl=en>

EDUCATION

2004 Ph. D. Aerospace Engineering, Texas A&M University, USA

2001 Ph. D. Physics, Peking University, China

POSITIONS

USA

2024 to now Professor of Mechanical Engineering, Purdue University in Indianapolis

2024 to now Research Professor of Vascular Surgery, IU School of Medicine

2017 to 2024: Associate Professor of Mechanical Engineering, IUPUI

2017 to 2024: Research Associate Professor of Vascular Surgery, IU School of Medicine

2011 to 2017: Assistant Professor of Mechanical Engineering, IUPUI

2014 to 2017: Research Assistant Professor of Surgery, IU School of Medicine.

2009 to 2011: Keck Foundation Postdoctoral Fellow, Mechanical Engineering,
The Johns Hopkins University.

2005 to 2009: Postdoctoral Research Associate, Los Alamos National Laboratory

2001 to 2004: Research Assistant, Aerospace Engineering, Texas A&M University

2000 to 2001: Research Assistant, Mechanical and Nuclear Engineering,
The Pennsylvania State University.

MEMBERSHIP

- 2018 – now: Integrated Nanosystems Development Institute (INDI)
- 2015 – now: IU/IUPUI Women of Color Research Network
- 2015 – now: American Heart Association (AHA)
- 2014 – 2016: Biomedical Engineering Society (BES)
- 2014 – 2018: Research Center for Quantitative Renal Imaging
- 2013 – now: Richard G. Lugar Center for Renewable Energy

- 2012 – now: Biomechanics and Biomaterials Research Center (BBRC)
- 2000 – now: American Physical Society (APS)

HONORS, AWARDS, AND RECOGNITIONS

1. 08/02-16, 2024: Sponsored **Faculty Research Guest**, Santa Catarina State University, Balneário-Camboriú, Brazil
2. 12/02/2023, Invited to be a **Scientific Committee Member**, International Conference on Transformative Technologies for Mechanical, Automotive and Space Applications (ICTMASA-2024) at Symbiosis Institute of Technology (SIT), Pune, India, June 2024.
3. 05/30/2023, **Invited Plenary Lecture**, The 34th International Conference on Parallel Computational Fluid Dynamics (ParCFD2023), Cuenca, Ecuador,
4. 07/01/2021–now: Sponsored **Faculty Research Guest**, Los Alamos National Laboratory
5. 2021-2022: **Visiting Researcher**, Pacific Northwest National Laboratory
6. 2021: **One of the three best papers** of the October 2021 Issue of *Drug Delivery and Translational Research* (Editor-in-Chief Maria Jose Alonso), selected by the journal's distinguished editorial board (<https://lnkd.in/d/jKJDZM>)! out of 30 papers.
<https://www.linkedin.com/feed/update/urn:li:activity:6846209189048549376>
7. 2019: **Top 10 percent of accepted abstracts** for American Heart Association Specialty Conference on Basic Cardiovascular Sciences Scientific Sessions 2019.
8. 05/2019: **The Third Prize Winner** of the Disease Diagnostics INventors Challenge competition from the Purdue Institute of Inflammation, Immunology and Infectious Disease (PI4D)
9. 06/01-30/2018: **International faculty Exchange Award**, Indiana University Office of The Vice International Affairs
10. 2018: **Top 10 percent of accepted abstracts** for *American Heart Association Specialty Conference on Basic Cardiovascular Sciences Scientific Sessions 2018*.
11. 2018: **Faculty Exchange Program Award**, Indiana University (IU) and Multiple Minority Serving Institutions (MSI) STEM Initiative.
12. 2017: **Best Poster Award**, The *2017 IEEE Central Indiana section's Engineering Conference* held in Bloomington, Indiana. IEEE Central Indiana Section, USA.
13. 2016-2018: **IU Health CV Service Line Research Award**, The Office of Vice President of IU Health, Cardiovascular Service Line.
14. 2015: **Inclusion in the Journal of Physics A Highlights of 2015 collection** (<http://iopscience.iop.org/1751-8121/page/Highlights-of-2015>)
15. 2014: **EMPOWER** (Enhanced Mentoring Program with Opportunities for Ways to Excel in Research) **Award**, Office of Vice Chancellor for Research, IUPUI.
16. 2014: **Research Time Release (RTR) AWARD**, Office of Vice Chancellor for Research, IUPUI.
17. 2012: **NSF CAREER Jump Start Award**, Office of Vice Chancellor for Research, IUPUI.
18. 01/01/2010 – 12/31/2012: **Distinguished Visiting Professor**, China Jiliang University, Hangzhou, China.
19. 2003: **Fellow of the Graduate Teaching Academy**, Texas A&M University, USA.
20. 1999-2000: **Visiting Fellow**, Institute of Mechanics, Chinese Academy of Sciences.
21. 1999: **Excellent Ph. D. Student Prize**, Peking University, China.
22. 1999: **The Seventh Youth Scientific Paper Competition – The Second Prize**, Peking University, China.

23. 1999: **Scientific Paper Competition – The Third Prize**, Education Committee of Zhejiang Province, China.

----- **RESEARCH** -----

PUBLICATIONS

Patent

1. **H. Yu** and A. Sawchuk, Methods of Producing Three-dimensional Arterial Morphological Geometries Using Duplex-Ultrasound Brightness-Mode Images, IU Reference Number: 2023-036-01, US Provisional Application Number: 63/494,330, Filing Date: April 5, 2023
2. **H. Yu**, Non-invasive Functional Assessment Technique for Determining Hemodynamics Severity of an Arterial Stenosis, US Patent 11538153, 12/28/2022
3. **H. Yu**, Y. Zhao, and C. Lin. Unified Computational Method and System for *In Vivo* Patient-Specific Hemodynamics, US Patent 10482215B2, 11/19/2019

Editorial

4. **H. Yu**, "Image-Based Computational and Experimental Biomedical Flows", *Fluids*, 9 (10) (2024), 227. <https://doi.org/10.3390/fluids9100227>

Peer-Reviewed Journals (*Corresponding author)

5. W. Hong, H. Yu, J. Chen, and A. P. Sawchuk, A Comparative Study of the Compliance of A Human Aortoiliac Graft, a Commercial Graft, and A 3-D Printed Graft in a Mock Circulation Loop, *Journal of Vascular Surgery*, 80(3) (2024), E79-E80. DOI: 10.1016/j.jvs.2024.06.133.
6. X. Zhang, Z. Mao, F. W. Hilty, Y. Li, A. Grandjean, R. Montgomery, H. Z. Loye, **H. Yu***, and S. Hu*, Volumetric lattice Boltzmann method for pore-scale mass diffusion-advection process in geopolymer porous structures, *Journal of Rock Mechanics and Geotechnical Engineering*, 16(6) (2024), 2126-36. <https://doi.org/10.1016/j.jrmge.2024.03.006>
7. Z. Mao, X. Zhang, Y. Li, V. Proust, A. Gossard, T. David, R. Montgomery, A. Grandjean, **H. Yu**, H-C Loye, S. Hu, Phase field-volumetric lattice Boltzmann model of ion uptake in porous nuclear waste form materials under continuous flow, *Journal of Nuclear Materials*, 596 (1) (2024) 155103. <https://doi.org/10.1016/j.jnucmat.2024.155103>
8. S. An, **H. Yu***, MD M. Islam, X. Zhang, Y. Zhan, J. J. Olivieri, J. Ambati, J. Yao, and B. D. Gelfand*, Effects of donor-specific microvascular anatomy on hemodynamic perfusion in human choriocapillaris, *Scientific Reports*, 13(2023) 22666. <https://doi.org/10.1038/s41598-023-48631-2>. PubMed PMID: 38114564; PubMed Central PMCID: PMC10730623.
9. B. Shang, R. Chen, W. Yan, and **H. Yu**, GPU accelerated volumetric lattice Boltzmann model for image-based hemodynamics in portal hypertension, *Computers and Fluids*, 266, 15(2023). 106038. <https://doi.org/10.1016/j.compfluid.2023.106038>
10. W. Hong, **H. Yu***, J. Chen, J. Talamantes, D. M. Rollins, X. Fang, J. Long, C. Xu, and A. P. Sawchuk, A Human-sized Mock Circulation Loop for in vitro Hemodynamic Characterization of Vascular Diseases, *Fluids*, 8(7)(2023) 198.
11. C. Rong, R. Chen, W. Yan, **H. Yu**, and Y. Xu, Hemodynamic analysis of external iliac artery based on VLBM, *Journal of Zhejiang University of Science and Technology*, 34(1) 2022, p7-16. DOI: 10.3969/j.issn.1671-8798.2022.01.002
12. A. P. Sawchuk*, J. Talamantes, W. Hong, R. Motaganahalli, and **H. Yu***, Development And Initial Validation Of A Modern Hemodynamics Laboratory, *Journal of Vascular Surgery*, 76(4) (2022) e73, DOI: <https://doi.org/10.1016/j.jvs.2022.07.152>. PubMed PMID: 35470047.

13. **H. Yu***, M. Khan, H. Wu, X. Du, R. Chen, D. M. Rollins, X. Fang, J. Long, C. Xu, M. Murphy, R. L. Motaganahallie, and A. P. Sawchuk. A new noninvasive and patient-specific hemodynamic index for assessing the severity of renal arterial stenosis, *International Journal for Numerical Methods in Biomedical Engineering*, 38(7) (2022) e3611. DOI: 10.1002/cnm.3611. PMID: 35509229. PubMed PMID: 35509229; PubMed Central PMCID: PMC9539998.
14. A. P. Sawchuk*, W. Hong, J. Talamantes, MD M. Islam, X. Luo, and **H Yu***, The Predictive Ability of the Renal Resistive Index and its Relationship to Duplex Ultrasound Waveform Propagation in the Aorta and Renal Arteries, *Annals of Vascular Surgery*, Apr 22: S0890-5096(2022) 00202-3. DOI: 10.1016/j.avsg.2022.04.019. PMID: 35470047.
15. **H. Yu***, M. Khan, H. Wu, C. Zhang, X. Du, R. Chen, X. Fang, J. Long, and A. P. Sawchuk, Inlet and Outlet Boundary Conditions in Volumetric Lattice Boltzmann Method for Patient-specific Computational Hemodynamics in Aortorenal Arterial System, *Fluids*, 7(1) (2022) 30. <https://doi.org/10.3390/fluids7010030>
16. X. Zhang, J Gomez-Paz, J. M. McDonough, Md M. Islam, Y. Andreopoulos, and **H. Yu***, Volumetric Lattice Boltzmann Method for Wall Stresses of Image-based Pulsatile Flows, *Scientific Reports*, 12 (2022) 1697. <https://doi.org/10.1038/s41598-022-05269-w>. PubMed PMID: 35105911; PubMed Central PMCID: PMC8807599.
17. A. P. Sawchuk, **H. Yu**, J. Talamantes, W. Hong, D. Rollins, and R. Motaganahalli, A Deep Dive into the Meaning of the Renal Resistive Index, its Limited Correlation With Renal Function, and a Theoretical Way Forward to Improve its Usefulness, *Journal of Vascular Surgery*, 74(4) (2021) e381–e382. DOI:<https://doi.org/10.1016/j.jvs.2021.07.158>
18. J. Gomez, **H. Yu**, and Y. Andreopoulos, The role of flow reversals in transition to turbulence and relaminarization of pulsatile flows, *Journal of Fluid Mechanics*, 917(6) (2021) A27. DOI: <https://doi.org/10.1017/jfm.2021.269>
19. R. Chen, S. Zhou, L. Zhu, L. Zhu, W. Yan, and **H. Yu***, Numerical and experimental study for 3D coalescence-induced detachment of microbubble, *Physics of Fluids*, 917(2021) 043320. <https://doi.org/10.1063/5.0043155>.
20. S. Abootorabi, A. Tripathi, **H. Yu**, and L. P. Dávila. Computational Modeling of Intraocular Drug Delivery Supplied by Porous Implants, *Drug Delivery and Translational Research*, 11(2021) 2134–2143. <https://doi.org/10.1007/s13346-020-00878-2>, PMID: 33432523.
 *** One of the three best papers of the October 2021 Issue of Drug Delivery and Translational Research (Editor-in-Chief Maria Jose Alonso), selected by our distinguished editorial board (<https://lnkd.in/djKJDZM>)!
<https://www.linkedin.com/feed/update/urn:li:activity:6846209189048549376/>
21. **H Yu***, C Rong, X Jin, Y Xu, M Murphy, R Motaganahalli, AP Sawchuk, Fast and Noninvasive Evaluation of In Vivo Pressure in Stenosed Aortoiliac Arteries, *Journal of Vascular Surgery* 72 (3) (2020) e308-e309. DOI: <https://doi.org/10.1016/j.jvs.2020.06.087>
22. S. An, Y. Zhan, J. Yao, **H. Yu**, and V. Niasar. A Greyscale Volumetric Lattice-Boltzmann Method for Upscaling Pore-Scale Two-Phase Flow, *Advances in Water Resources*, 144(2020) 103711. DOI: <https://doi.org/10.1016/j.advwatres.2020.103711>.
23. R. Chen, **H. Yu***, J. Zeng, and L. Zhu. General Power-law Temporal Scaling for Unequal Microbubble Coalescence, *Physical Review E*, 101(2020) 023106. PMID: 32168553
24. H. Wu, M. Khan, X. Du, A. P. Sawchuk, and **H. Yu***. Reliability Analysis for CTA-Based Non-invasive Pressure Quantification in Aortorenal Artery Systems, *Circulation Research*, 125 (suppl_1) (2019) A122. DOI: https://doi.org/10.1161/res.125.suppl_1.122

25. **H Yu***, M Khan, A. P. Sawchuk, Q. Wang, H. Lou, L. Zhang, X. Fang, H. Liang, and R. L. Motaganahalli. Fast, Non-invasive, and Patient-specific Assessment for Ischemic Severity of Arterial Stenosis, *Arteriosclerosis, Thrombosis, and Vascular Biology*, 39: A364 (Suppl_1) (2019) A364. DOI: https://doi.org/10.1161/atvb.39.suppl_1.364
26. R. Chen, J. Zeng, and **H. Yu***. Mechanism of Damping Oscillation in the Bubble Coalescence, *Computer & Fluids*, 183(4) (2019) 38-42. DOI: <https://doi.org/10.1016/j.compfluid.2019.03.008>
27. R. Chen, **H. Yu***, Y. Xu, and L. Zhu. Scalings of inverse energy transfer and energy decay in 3-D decaying isotropic turbulence with and without rotation, *Journal of Applied and Computational Mechanics*, 5(4) (2019) 639-646. DOI: <https://doi.org/10.22055/jacm.2018.26826.1361>
28. Z. Wang, Y. Zhao, **H. Yu**, C. Lin, and A. P. Sawchuck. Fully Parallelized Lattice Boltzmann Scheme for Fast Extraction of Biomedical Geometry, *Journal of Parallel and Distributed Computing*, 128(6) (2019) 126-136. <https://doi.org/10.1016/j.jpdc.2019.02.004>
29. R. Chen, **H. Yu***, and L. Zhu. Effects of Initial Conditions on the Coalescence of Micro-bubbles, *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*, 232(2018) 457-465. DOI: <https://doi.org/10.1177/0954406217742941>
30. B. Gelfand, J. Ambati, S. An, R. Chen; **H. Yu**, and J. Yao. Hemodynamic shear stress in the inner choroid primes endothelium for complement damage, *Investigative Ophthalmology & Visual Science*, 59(9) (2018) 3473. DOI: <http://doi:1552-5783>.
31. **H. Yu***, A. Deb, M. Khan, R. Chen, Y. Yang, I-W Wang, Non-Invasive, Patient-Specific Assessment of LVAD Modeled with Consideration of LV Ejection and Function, *Circulation Research*, 123(Suppl_1) (2018) A229. DOI:https://doi.org/10.1161/res.123.suppl_1.229
32. M. Khan, A. P. Sawchuk, A. Deb, R. Chen, R. L. Motaganahalli, X. Fang, and **H. Yu***. Effective Three-element Windkessel Model based on Doppler Ultrasound Images for Noninvasive Quantification of Trans-stenotic Pressure Gradient in Aortorenal System, *Circulation Research*, 123(Suppl_1) (2018) A360. DOI: https://doi.org/10.1161/res.123.suppl_1.360
33. A. P. Sawchuk, M. Khan, A. Deb, R. L. Motaganahalli, X. Fang, C. Xu, and **H. Yu***. Non-invasive and patient-specific assessment of true severity of renal arterial stenosis for new guidelines for planning stent therapy, *Journal of Vascular Surgery*, 68(3)(2018) e64–e65. DOI:<https://doi.org/10.1016/j.jvs.2018.06.062>.
34. S. Zhou, Y. Cao, R. Chen, T. Sun, F. Carlo, **H. Yu**, L. Zhu. Study on coalescence dynamics of unequal-sized microbubbles captive on a solid substrate, *Experimental thermal and fluid science*, 98(2018) 362-368. DOI: <https://doi.org/10.1016/j.expthermflusci.2018.06.016>
35. BD Gelfand, S. An, **H. Yu**, R. Chen, J. Yao, and J. Ambati. Shear stress governs choroidal endothelial cell proliferation and homeostasis, *Investigative Ophthalmology & Visual Science* 58 (8) (2017) 1102. DOI: <http://doi.org/1552-5783>.
36. **H. Yu***, A. Deb, X. Chen, R. Chen, D. Wang, I-Wen Wang. A Non-invasive Technique for Fast Assessment of Optimal LVAD Outflow Graft Implant Sites, *Circulation Research*, 121(2017) A221. DOI: https://www.ahajournals.org/doi/10.1161/res.121.suppl_1.221
37. S. An, **H. Yu***, and J. Yao. GPU-accelerated Volumetric Lattice Boltzmann Method for Porous Media Flow, *Journal of Petroleum Science and Engineering*, 156 (2017) 546-552. DOI: <https://doi.org/10.1016/j.petrol.2017.06.031>.
38. S. An, **H. Yu***, Z. Wang, R. Chen, B. Kapadia, J. Yao. Unified Mesoscopic Modeling and GPU-accelerated Computational Method for Image-based Pore-scale Porous Media Flows, *International Journal of Heat and Mass Transfer*, 115(2017)1192-1202. <https://doi.org/10.1016/j.ijheatmasstransfer.2017.08.099>

39. Z. Wang, Y. Zhao, **H. Yu**, X. Chen, C. Lin, S. F. Kralik, and G. D. Hutchins. Using flow feature to extract pulsatile blood flow from 4D flow MRI images, *Proc. SPIE 10133, Medical Imaging 2017: Image Processing*, 101331O (February 24, 2017); DOI:<https://doi.org/10.1117/12.2249500>.
40. R. Chen, **H. Yu***, L. Zhu, T. Lee, and R. M. Patil. Spatial and Temporal Scaling of Unequal Microbubble Coalescence, *The AIChE Journal*, 63(4) (2017) 1441-1450. DOI:<https://doi.org/10.1002/aic.15504>
41. **H. Yu***, X. Chen, Z. Wang, R. Chen, C. Lin, S. F. Kralik, and P. Raveena. Integration of patient-specific computational hemodynamics and vessel wall shear stress into MRI diagnosis of vascular diseases, *Circulation Research*, 119(Suppl_1) (2016) A235. DOI: https://www.ahajournals.org/doi/10.1161/res.119.suppl_1.235
42. A. P. Sawchuk, R. Patil, H. Zhu, **H. Yu***, R. Motaganahalli, and M. C. Dalsing. Noninvasive Measurement of Renovascular Resistance and the Meaning and Limitations of the Renal Resistance Index, *Journal of Vascular Surgery*, 64(3) (2016) 876-877. DOI: 10.1016/j.jvs.2016.07.030
43. A. P. Sawchuk, **H. Yu***, A. Mumbaraddi, and M. C. Dalsing. The Hemodynamics of Renovascular Hypertension and Atherosclerosis, *Journal of Vascular Surgery*, 62(3) (2015) 821-822. DOI:[HTTPS://DOI.ORG/10.1016/J.JVS.2015.06.151](https://doi.org/10.1016/j.jvs.2015.06.151)
44. A. P. Sawchuk, A. Mumbaraddi, **H. Yu***, and M. C. Dalsing. PC88. The Complex Hemodynamics of Renal Artery Atherosclerosis, *Journal of Vascular Surgery*, 61(6)(2015)141S-142S. DOI: [HTTPS://WWW.JVASCSURG.ORG/ARTICLE/S0741-5214\(15\)00740-5/PDF](https://www.jvascsurg.org/article/S0741-5214(15)00740-5/pdf)
45. Z. Wang, Y. Zhao, A. P. Sawchuck, M. C. Dalsing, and **H. Yu***. GPU Acceleration of Volumetric Lattice Boltzmann Method for Patient-specific Computational Hemodynamics, *Computer & Fluids*, 115(2015)192-200. DOI: 10.1016/j.compfluid.2015.04.004
46. **H. Yu***, X. Chen, Y. Xu, and Y. Joglekar. Scaling of PT-asymmetries in viscous flow with PT-symmetric inflow and outflow, *Journal of Physics A: Mathematical and Theoretical*, 48 (2015) 035501.
 ***Selection for inclusion in the Journal of Physics A Highlights of 2015 collection (<http://iopscience.iop.org/1751-8121/page/Highlights-of-2015>)
47. A. P. Sawchuk, **H. Yu**, M. C. Dalsing. Rethinking the Cause-and-Effect Relationship Between Renovascular Hypertension and Renal Artery Stenosis, *Journal of Vascular Surgery* 60:4 (2014) 1109-1110.
48. **H. Yu***, X. Chen, Z. Wang, D. Deep, E. Lima, Y. Zhao, and S. D. Teague. Mass-conserved volumetric lattice Boltzmann method for complex flows with or without willfully moving boundaries, *Physical Review E*, 89 (2014) 063304. DOI:<https://doi.org/10.1103/PhysRevE.89.063304>
49. X. Chen, **H. Yu***, J. Yogesh, Y. Zheng, Y. Xu, and F. Wu. The influence of different driving patterns on parity time-reversal symmetry, *Acta Physica Sinica*, 63(6) (2014) 060206
50. **H. Yu***, R. Chen, H. Wang, Z. Yuan, Y. Zhao, Y. An, Y. Xu, and L. Zhu. GPU accelerated lattice Boltzmann simulation for rotational turbulence, *Computer & Mathematics with Applications*, 67(2) (2014) 437-451
51. N. Chen and **H. Yu***. Mechanism of axis switching in low aspect-ratio rectangular jets, *Computer & Mathematics with Applications*, 67(2) (2014) 437-444
52. R. Chen, J. Shao, Y. Zheng, **H. Yu***, Y. Xu. Lattice Boltzmann simulation for complex flow in a solar wall, *Communications in Theoretical Physics*, 59 (2013) 370 - 374.

53. **H. Yu**, K. Kanov, E. Perlman, J. Graham, E. Frederix, R Burns, A. Szalay, G. Eyink, and C. Meneveau. "Studying Lagrangian dynamics of turbulence using on-demand fluid particle tracking in a public turbulence database", *Journal of Turbulence*, 13 (2012), 1-29. DOI: <https://doi.org/10.1080/14685248.2012.674643>.
54. T. A. Lavin, S. S. Girimaji, S. Suman, and **H. Yu**. Flow-thermodynamics interactions in rapidly-sheared compressible turbulence, *Theoretical and Computational Fluid Dynamics*, 26 (2012), 501-522
55. L. Chevillard, E. Leveque, F. Taddia, C. Meneveau, **H. Yu**, and C. Rosales. "Local and nonlocal pressure Hessian effects in real and synthetic fluid turbulence", *Physics of Fluids*, 23 (2011) 095208. DOI:<https://doi.org/10.1063/1.3638618>.
56. **H. Yu** and C. Meneveau. "Lagrangian Refined Kolmogorov Similarity Hypothesis for Gradient Time-evolution in Turbulent Flows", *Physical Review Letters*, 104 (2010) 084502. DOI:<https://doi.org/10.1103/PhysRevLett.104.084502>.
57. **H. Yu** and C. Meneveau. "Scaling of conditional Lagrangian time correlation functions of velocity and pressure gradient magnitudes in isotropic turbulence", *Flow, Turbulence and Combustion*, 85 (2010) 457 – 472. DOI:10.1007/S10494-010-9256-5.
58. **H. Yu*** and D. Livescu. "Linear stability analysis of Rayleigh-Taylor instability in cylindrical geometry ", *Physics of Fluids*, 20 (2008) 104103.
59. **H. Yu***, J. Zhang, and N. Li. "Lattice Boltzmann simulation of mass transfer in thermally driven cavity flows", *Progress in Computational Fluid Dynamics*, 8 (2008) 206.
60. **H. Yu** and S. S. Girimaji. "Study of axis-switching and stability of laminar rectangular jets using lattice Boltzmann method", *Computers & Mathematics with Application* 55 (2008) 1611.
61. **H. Yu***, N. Li, and R. E Ecke. "Scaling in laminar natural convection in laterally heated cavities: Is turbulence essential in the classical scaling of heat transfer? ", *Physical Review E* 77 (2007) 026303.
62. **H. Yu**, and S. S. Girimaji. "Extension of compressible ideal-gas RDT to general mean velocity gradients", *Physics of Fluids* 19 (2007) 041702.
63. **H. Yu**, L-S Luo, and S. S. Girimaji. "Large-eddy simulation of a square turbulent jet using multi-relaxation-time lattice Boltzmann model", *Computers & Fluids* 35 (2006) 957-965. DOI:10.1016/j.compfluid.2005.04.009.
64. **H. Yu** and S. S. Girimaji. "Lattice Boltzmann equation simulation of rectangular jet (AR=1.5) instability", *Physica A* 362 (2006) 151-157.
65. **H. Yu**, and S. S. Girimaji. "Near-field mixing in low aspect ratio rectangular jet turbulent flows", *Physics of Fluids* 17 (2005) 125106. DOI:<https://doi.org/10.1063/1.2140021>
66. **H. Yu**, S. S. Girimaji, and L-S Luo. "Lattice Boltzmann simulations of decaying homogeneous isotropic turbulence with and without system rotation", *Physical Review E* 71 (2005) 204501. PMID: 15697765.
67. **H. Yu**, S. S. Girimaji, and L-S Luo. "DNS and LES of decaying homogeneous isotropic turbulence with and without system rotations using lattice Boltzmann method", *Journal of Computational Physics* 209 (2005) 599-616. DOI: 10.1016/j.jcp.2005.03.022
68. **H. Yu**, L.-S. Luo, and S. S. Girimaji. "Scalar mixing and reaction simulations using lattice Boltzmann method", *International Journal of Computational Engineering Science* 156 (2002) 1.
69. Y. Xu, CQ Liu, **H. Yu**. "New studying of lattice Boltzmann method for two-phase driven in porous media", *Applied Mathematics and Mechanics* 23 (2002) 387-393. DOI: 10.1007/BF02436207

70. **H. Yu*** and K. Zhao. "Rossby vortex simulation on the paraboloidal coordinate system using Lattice Boltzmann method", *Physical Review E* 64 (2001) 056703.
DOI:<https://doi.org/10.1103/PhysRevE.64.056703>
71. **H. Yu*** and K. Zhao. "Lattice Boltzmann method for compressible flows with high Mach number," *Physical Review E* 61 (2000) 3867. PMID: 11088166
72. **H. Yu** and K. Zhao. "Pattern select: nonsingular Saffman-Taylor finger and its dynamic evolution with zero surface tension", in *Fractal 2000 – Complexity and Fractals in the Sciences*, p. 279-286, editor: M. M. Novak, Singapore: World Scientific, 2000. ISBN: 9810242921.
73. **H. Yu*** and K. Zhao. "Modified high Mach number Lattice Boltzmann model", *Acta Physica Sinica*, 49(4) (2000) L816.
74. **H. Yu*** and H. Zhen, "A practical operator to fast approach Fourier series sum", *Acta Mechanica Sinica-Chinese Edition*, 32(1)(2000)53-56.
75. **H. Yu*** and K. Zhao. "A new lattice Boltzmann model for two-phase fluid", *Chinese Physical Letter* 16 (1999) 271.
76. **H. Yu*** and K. Zhao. "High Mach number Lattice Boltzmann model", *Acta Physica Sinica*, 48(8) (1999)1475-1481.
77. **H. Yu***, and K. Zhao. "Width selection of nonsingular Saffman-Taylor finger with zero surface tension", *Journal of Zhejiang University* 31(1) (1999) 270.
78. **H. Yu**. "Lattice gas automaton for simulating hydromechanics." *Physics Bulletin* 3 (1999) 4.
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80. **H. Yu*** and Z. Han. "Numerical simulation of two-dimensional viscous fingering by the conformal mapping method", *Physical Review E* 58 (1998) 6873.
81. K. Zhao and **H. Yu***. "Nonsingular Saffman-Taylor finger", *Communication in Nonlinear Sciences and Numerical Simulation* 5 (1997) 28.
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83. **H. Yu**. "Similarities reductions of the 2+1 dimensional high degree CDGSK equation", *Communication in Nonlinear Sciences & Numerical Simulation* 1 (1996) 28.
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91. **H. Yu***, J. Zhang, and Y. Xu. "Noether's theory for nonholonomic dynamic systems relative to non-inertial references." *Applied Mathematics and Mechanics* 14 (1993) 527.
92. J. Zhang and **H. Yu**. "Solving non-simultaneous variational equations of nonholonomic systems by using its first integral", *Journal of Xinjiang Normal University* 10 (1993) 43.
93. **H. Yu**. "The movable integration of relative dynamic equations of nonholonomic systems", *Journal of Zhejiang Normal University* 16 (1993) 43.
94. **H. Yu**. "Lagrange equation in non-inertial reference", *Journal of Zhejiang Normal University* 15 (1992) 52.
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95. **H. Yu***, J. Zhang, and P. Han, "Integration of high order relative dynamic equations for nonholonomic systems", *Journal of Zhoushan Normal College* 29 (1992) 39.
96. **H. Yu*** and D. Zhang. "A prospective scientific field", *Remote Advanced Education* 3(1992) 66.
97. **H. Yu**. "Motion investigation for a particle on a coarse sphere", *Journal of Zhejiang Normal University* 14 (1991) 58.
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Conference -w/Refereed Paper

100. **H. Yu***, W. Hong, J. Chen, and A. P. Sawchuk, A Pulsatile Flow Loop to Measure Blood Pressure in Stenosed Human Arteries, in the "20th International Conference on Experimental Mechanics Applications in Materials Science, Engineering and Biomechanics (ICEM20)", Porto, Portugal, July 2-7, 2023
101. **H. Yu*** and A. P. Sawchuk, Image-based and GPU-Accelerated Computational Hemodynamics For Medical Application, in the "Proceedings of the 34th International Conference on Parallel Computational Fluid Dynamics (ParCFD2023)", Cuenca, Ecuador, May 29-31, 2023.
102. X. Zhang, J. McDonough, and **H. Yu***, Laminar and Turbulent Behavior Captured by A 3-D Kinetic-Based Discrete Dynamic System, in the "Proceedings of Eleventh International Conference on Computational Fluid Dynamics (ICCFD11)", Maui, HI, USA, July 11-15, 2022
103. H. Li, M. Islam, **H. Yu**, and X. Du, Physics-Based Regression vs. CFD for Hagen-Poiseuille and Womersley Flows and Uncertainty Quantification, in "Eleventh International Conference on Computational Fluid Dynamics (ICCFD11)", Maui, HI, USA, July 11-15, 2022
104. **H. Yu*** and R. Chen. Study OF Bubble Coalescence in Microfluidics Using GPU Accelerated lattice Boltzmann Method, in "Proceedings of 31st International Conference on Parallel Computational Fluid Dynamics", Antalya, Turkey, May 2019, pp. 1-4.
(<http://www.parcfd.org/2019/program/serv.php?No=1012>).
105. **H. Yu***, R. Chen, S. An, and J. Yao, GPU Acceleration of Lattice Boltzmann Method for Complex Flows, in the "Proceedings of The 30th International Conference on Parallel Computational Fluid Dynamics", Indianapolis, USA, May 2018.
106. R. Chen, **H. Yu***, and L. Zhu, Dynamics of Microbubble Coalescence Analysis Based on GPU Acceleration Lattice Boltzmann Method, in the "Proceedings of The 30th International Conference on Parallel Computational Fluid Dynamics(ParCFD)", Indianapolis, USA, May 2018.
107. M. Khan A. Deb, R. Chen, **H. Yu***, Q. Wu, Murray, R. Nathan, and A. P. Sawchuk, Noninvasive Quantification of Patient-specific Blood Pressure Gradient via Concurrent

- Computational and Experimental Fluid Dynamics, in the “Proceedings of The 30th International Conference on Parallel Computational Fluid Dynamics (ParCFD)”, Indianapolis, USA, May 2018.
108. **H. Yu**, S. An, R. Chen, B. Kapadia, J. Yao, J. M. McDonough, InPore: GPU-accelerated Lattice Boltzmann Method for Image-based Pore-scale Porous Media Flows, in the “Proceedings of The 29th International Conference on Parallel Computational Fluid Dynamics(ParCFD)”, Glasgow, United Kingdom, May 2017.
 109. R. Chen, **H. Yu***, L. Zhu, and T. Lee. Numerical Simulation and Analysis of Size Inequality on Microbubble Coalescence, in “*Proceedings of 28th International Conference on Parallel Computational Fluid Dynamics*”, Kobe, Japan, May 2016 (K. Morinishi and K. Ono, Editors), pp. 114-115.
 110. **H. Yu***, X. Chen, Z. Wang, R. Chen, C. Lin, S. F. Kralik, Y. Zhao, A. P. Sawchuk. Validity of Patient-specific Computational Hemodynamics for Noninvasive Quantification of Blood Flow, in “*Proceedings of 28th International Conference on Parallel Computational Fluid Dynamics*”, Kobe, Japan, May 2016 (K. Morinishi and K. Ono, Editors), pp. 150-151.
 111. **H. Yu***, Z. Wang, Y. Zhao, A. P. Sawchuk, C. Lin, M. C. Dalsing. “GPU-accelerated Patient-Specific Computational Flow— From Radiological Images to *in vivo* Fluid Dynamics”, (2015), in “*Proceedings of 27th International Conference on Parallel Computational Fluid Dynamics Parallel CFD2015*”, Montreal, Canada, May 2015. (W. G. Habashi and M. Fossati, Editors)
 112. **H. Yu***, R. Chen, and L. Zhu. “GPU-accelerated Lattice Boltzmann method for direct numerical simulation of decaying isotropic turbulence with and without rotation “, (2014), in “*Proceedings of 26th International Conference on Parallel Computational Fluid Dynamics Parallel CFD2014*”, Trondheim, Norway, May 2014. (T. Kvamsdal, Editor)
 113. R. Nalim, L. Li, P. Orono, R. Helfenbein, **H. Yu**, and M. Mital, PROJECT-ENHANCED LEARNING IN CHALLENGINGENGINEERING SCIENCE COURSES, American Society for Engineering Education, 2012 IL/IN Sectional Conference, Valparaiso University, Valparaiso, Indiana.
 114. C. Meneveau & **H. Yu**. “Public database-enabled analysis of Lagrangian statistics in isotropic turbulence” (2009), in “*Proceedings of Euromech Colloquium 512: Small scale turbulence and related gradient statistics*”, Accademia delle Scienze di Torino (D. Tordella & K. R. Sreenivasan, editors).
 115. **H. Yu** & D. Livescu. “Convergence Effects on Acceleration driven Instability” in “*Section 2: Applied Mathematics, Fluid Dynamics, and Magnetohydrodynamics, ADTSC Science Highlights 2008*”, pp. 26, Los Alamos National Laboratory.

PRESENTATIONS

Invited Talks

1. **(Lecture Series)** Lattice Boltzmann Method and its Applications. Department of Petroleum Engineering, Santa Catarina State University, Balneário, Brazil, August 2024
2. **(Keynote speech)** Unified Lattice Boltzmann Modelling and GPU Accelerated Computation for Image-based Complex Flows, The 9th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS) Congress 2024, June 2024, Lisbon, Portugal.

3. **(Invited Plenary Lecture)** Image-based and GPU-Accelerated Computational Hemodynamics For Medical Applications, The 34th International Conference on Parallel Computational Fluid Dynamics (ParCFD2023), Cuenca, Ecuador, May 30, 2023.
<https://www.parcfd2023.org/invited-speakers/>
4. GPU-accelerated Volumetric Lattice Boltzmann Method for Image-based Computation Fluid Dynamics, T-3 Division, Los Alamos National Laboratory, 06/28/2022
5. Computational Modeling and Experimental Measurement of Transition to Turbulence and Re-laminarization in Pulsatile Flows, Yiannis Andreopoulos Symposium at City College of New York, 05/29/2022
6. Imaged-Based 4-D Computational Fluid Dynamics for Medical Applications, Department of Mechanical and Energy Engineering, Indiana University-Purdue University, Indianapolis, 03/31/2022
7. A Novel Non-invasive and Personalized Hemodynamic Index for Assessing the Severity of Arterial Stenosis, Biomechanics and Biomaterials Research Center (BBRC) Symposium, IUPUI, 02/11/2022
8. A Novel Non-invasive and Personalized Hemodynamic Index for Assessing the Severity of Arterial Stenosis, Department of Biomedical Engineering, University of Louisville, August 31, 2021
9. Image-based Computational and Experimental Fluid Dynamics for Cardiovascular Diseases, INDI's NSF-ITEST program, 05/13/2021.
10. Unified Modeling and GPU-accelerated Lattice Boltzmann Method for Imaged-Based Computational Fluid Dynamics, Los Alamos Northern New Mexico section (LANNM)/Computer Science Chapter of IEEE, 03/02/2021
11. Unified Modeling and GPU-accelerated Lattice Boltzmann Method for Imaged-Based Computational Fluid Dynamics, Physics and Theoretical Division Colloquium, Los Alamos National Laboratory, 12/10/2020
12. GPU Accelerated Lattice Boltzmann Simulation of Imaged-based Computational Hemodynamics in Human Vessels, Mechanical Engineering Department, City College of New York, 08/29/2019
13. Patient-specific and Non-invasive Diagnostics and Therapeutics for Cardiovascular Disease, IU-MSI STEM Initiative - Lightning Talk Webinar, Zoom, 10/24/2018
14. Patient-specific and Non-invasive Diagnose and Pre-surgical Assessment for Cardiovascular Diseases --- Toward Precision Medicine of Cardiovascular Diseases. The 1st Affiliated Hospital of Zhejiang University, Hangzhou, China, 06/05/2018
15. *InVascular*: from Medical Images to 4D hemodynamics, Mechanical and Energy College, Zhejiang University of Science and Technology, 05/24/2018
16. Engineering Modeling and Assessment for Patient-specific Cardiovascular Diseases toward Precise Medicine, Visual Insights talk series, Cyberinfrastructure for Network Science Center (CNS) and Advanced Visualization Lab (AVL), Indiana University Bloomington, 04/16/2018
17. *InVascular*: From Clinical Images to Patient-specific Guidelines for Cardiovascular Diseases, Department of Biomedical Engineering, Indiana University-Purdue University, Indianapolis (IUPUI), 03/08/2018

18. *InVascular*: Patient-specific and Non-invasive Assessment for Severity of Vascular Diseases and Necessity of Vascular Treatments, Intelligent & Interactive Systems/Emerging Areas of Research Seminar, School of Informatics, Computing, and Engineering, Indiana University Bloomington, 09/25/2017
19. Image-based Fast and Noninvasive Diagnose/Assessment for Cardiovascular Diseases/Therapies, The 1st Affiliated Hospital, School of Medicine, Zhejiang University, China. 06/07/2017
20. *InPore*: GPU-accelerated Lattice Boltzmann Method for Image-based Pore-scale Porous Media Flows, China University of Petroleum, Qingdao, China, 05/22/2017
21. Computational Modeling Based Non-invasive Assessment of Cardiovascular Abnormalities, IU Health Cardiovascular Maymester Program, Methodist Hospital, Indianapolis, 05/20/2016
22. From CT/MRI Images to Clinical Hemodynamics Assessment, College of Engineering, Sun Yat-SEN University, Guangzhou, China, 05/16/2016
23. Patient-specific Computational Modeling and Analysis for Noninvasive Assessment of Hemodynamics Abnormalities, Department of Mechanical and Aerospace Engineering, The George Washington University, Washington DC, 02/04/ 2016
24. Unified and GPU-accelerated Lattice Boltzmann Method for Image-based Computational Modeling and Numerical Analysis, School of Petroleum Engineering, China University of Petroleum (Huadong), Qingdao, Shandong, China, 12/22/2015
25. Image-based computational analysis for biomedical flows, William Maxwell Reed research seminar, Mechanical Engineering Department, University of Kentucky, Lexington, 12/04/2015
26. GPU-accelerated Patient-Specific Computational Flow— From Radiological Images to *in vivo* Fluid Dynamics, (Plenary Lecture), The 27th International Conference on Parallel Computational Fluid Dynamics Parallel CFD”, Montreal, Canada, May 2015.
27. A Unified Computational Tool for Patient-Specific Hemodynamics — From radiological images to *in-vivo* flow structures, Colloquium - Department of Mathematical Sciences, 02/14/2014
28. Computational Hemodynamics in Patient-specific Aortic Arteries, Los Alamos Northern New Mexico section (LANNM)/Computer Science Chapter of IEEE, 12/07/2013
29. Unified Lattice Boltzmann Computation for Patient-specific Hemodynamics in Healthy and Diseased Aorta, Colloquium Series Talk, Kent State University, Nov 25, 2013
30. Lattice Boltzmann method for blood flow in patient-specific aortas, Graduate Seminar Series, Purdue Mechanical Engineering, Purdue University, Oct. 3, 2013
31. Quadratic scaling in PT fluids, Turbulence Symposium, Texas A&M University, March 26-30, 2013.
32. Parity time-reversal symmetry in viscous fluid with balanced inflow and outflow, American Mathematics Society/Spring Western Section/Special Session on Subjects in between Pure and Applied Mathematics, April 2013, Boulder, Colorado
33. Mass-conserved volumetric lattice Boltzmann method for complex flows with or without willfully moving boundaries, Mathematical Sciences Seminar Series, IUPUI, Oct. 2012
34. Opportunities and challenges in computational turbulence research with cyberinfrastructure, Shanghai Institute of Applied Mathematics and Mechanics, China, Jan. 06, 2010
35. Lagrangian refined Kolmogorov similarity hypothesis in isotropic turbulence and JHU turbulence database, American Mathematics Society/Spring Western Section/Special Session on Subjects in between Pure and Applied Mathematics, April 2010, Albuquerque, New Mexico

36. Kinetic Representation of Computational Fluid Dynamics and Beyond---- Lattice Boltzmann Method, China Jiliang University, Hangzhou, China, Dec. 29, 2008
37. Compressible Rayleigh-Taylor Instability in Cylindrical Geometry, Peking University, Beijing, China, Dec. 23, 2008
38. Compressible Rayleigh-Taylor Instability in Cylindrical Geometry, Center for Risk Studies and Safety, the University of California Santa Barbara, Oct. 2008.
39. Kinetic-based and hydrodynamic-based computation for turbulence and other complex flows, Aeronautics and Astronautics Department, University of Washington, Seattle, WA, March. 2008.
40. Kinetic and Hydrodynamic Computation for Complex Flows, GE Global Research, Niskayuna, NY, Oct. 2007.
41. Lattice Boltzmann Method for Complex Flows, T-3, Los Alamos National Laboratory, Sep. 2006.
42. Turbulence Simulations Using Lattice Boltzmann Method, The City College of New York, Mar. 2005.
43. Lattice Boltzmann Equation Simulations for Mixing and Reactions, X-3/CNLS, Los Alamos National Laboratory, Jan. 2005.

Conference Presentations

44. **H. Yu**, X. Zhang, J. M. McDonough, and M. Li, Logistic Map and Bifurcation Parameters of a New 3-D Kinetic-based Discrete Dynamical System for Sub-grid-scale Modeling, The 77th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, November 24-26, 2024, Salt Lake City, Utah.
45. W. Hong, V. Tewari, **H. Yu**, J. Chen, and A. P. Sawchuk, Exploring Polymer Vascular Grafts to Match to Compliance of Human Vascular Arteries, The 77th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, November 24-26, 2024, Salt Lake City, Utah.
46. M. T. Blubaugh, D. Zhang, **H. Yu**, and M. Wang, A Novel Add-On Tool for Calculating Hydrodynamic Force on Immersed Object Independent of Local Wall Orientation, The 77th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, November 24-26, 2024, Salt Lake City, Utah.
47. H. Yu, GPU-Accelerated Volumetric Lattice Boltzmann Method for Pore-Scale Flows in Image-Based Porous Structures, Fluids Engineering Division Summer Meeting (FEDSM 2024), July 15-17, Anaheim, California.
48. W. Hong, J. Chen, A. P. Sawchuk, and **H. Yu**, Experimental Reproduction of Hemodynamic Index to Assess Severity of Arterial Stenoses: Implications for Revascularization Recommendations, The 76th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, November 19-21, 2023, Washington DC.
49. M. Blubaugh, X. Zhang, D. Zhang, D. Sun, and **H. Yu**, Pressure unit conversion in lattice Boltzmann method, The 76th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, November 19-21, 2023, Washington DC.
50. X. Zhang, Y. Li, F. Hilty, P. Vanessa, A. Grandjean, R. Montgomery, H. Z. Loye, S. Hu, and **H. Yu**, GPU-accelerated volumetric lattice Boltzmann method for pore-scale diffusion-advection in geopolymer porous structures for nuclear waste treatment, The 76th Annual Meeting of the

American Physical Society's Division of Fluid Dynamics, November 19-21, 2023, Washington DC.

51. **H. Yu**, X. Zhang, and J. M. McDonough, Derivation of a 3-D Kinetic-Based Discrete Dynamic System and Assessment with DNS Data, The 76th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, November 19-21, 2023, Washington DC.
52. **H. Yu**, W. Hong, J. Chen, and A. P. Sawchuk, A Pulsatile Flow Loop to Measure Blood Pressure in Stenosed Human Arteries, The 20th International Conference on Experimental Mechanics Applications in Materials Science, Engineering and Biomechanics(ICEM20), July 2-7, 2023, Porto, Portugal,
Invited Plenary Lecture (<https://www.parcfd2023.org/invited-speakers/>)
53. **H. Yu**, X. Zhang, J. Yin, J. M. McDonough, and X. Du, A 3-D Kinetic-Based Discrete Dynamic System and its Surrogate Models by Machine Learning, The 75th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, November 20-22, 2022, Indianapolis, Indiana.
54. W. Hong, J. Talamantes, A. P. Sawchuk, and **H. Yu**, Laboratory measurement of blood pressure in human aortoiliac arterial systems via image-based experimental hemodynamics, The 75th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, November 20-22, 2022, Indianapolis, Indiana.
55. X. Zhang, Y. Li, F. Hilty, P. Vanessa, A. Grandjean, R. Montgomery, H. Z. Loye, **H. Yu**, and S. Hu, Effect of porous structures in zeolite/geopolymer composites on flow fields using GPU accelerated volumetric lattice Boltzmann method, The 75th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, November 20-22, 2022, Indianapolis, Indiana.
56. X. Zhang, J. M. McDonough, and **H. Yu**, Laminar and Turbulent Behavior Captured by A 3-D Kinetic-Based Discrete Dynamic System, The Eleventh International Conference on Computational Fluid Dynamics (ICCFD11), Maui, Hawaii, July 2022.
57. Md M. Islam, H. Li, **H. Yu**, and X. Du, Physics-Based Regression vs. CFD for Hagen-Poiseuille and Womersley Flows and Uncertainty Quantification, The Eleventh International Conference on Computational Fluid Dynamics (ICCFD11), Maui, Hawaii, July 2022.
58. **H. Yu**, S. An, M. MD Islam, X. Zhang, and B. Gelfand, H. Yu, Image-based Computational Hemodynamics for Endothelium Shear Stress in Human Choriocapillaris Using Volumetric Lattice Boltzmann Method, The 74th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, November 21-23, 2021, Phoenix, AZ.
59. X. Zhang, J. M. McDonough, and **H. Yu**, Laminar and Turbulent flow Behaviors in a 3-D Kinetic-based Discrete Dynamical System, The 74th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, November 21-23, 2021, Phoenix, AZ.
60. **H. Yu**, X. Zhang, J. Gomez, J. M. McDonough, M. Islam, Mahfuzul, and Y. Andreopoulos, GPU accelerated Volumetric Lattice Boltzmann Method for Wall Stresses in Image-based Pulsatile flows, The 17th International Conference for Mesoscopic Methods in Engineering and Science (ICMMES 2021), online, July 2021
61. X. Zhang, J.M. McDonough, and **H. Yu**, A 3-D kinetic-based Discrete Dynamic System: Derivation and Preliminary Results, The 17th International Conference for Mesoscopic Methods in Engineering and Science (ICMMES 2021), online, July 2021

62. **H. Yu**, X. Zhang, S. Abootorabi, H. Yokota, and L. Zhu, A Novel Computational Framework for Pulsatile Wall-shear Stress in Image-based Computational Fluid Dynamics, The 73rd Annual Meeting of the American Physical Society's Division of Fluid Dynamics (Virtual), Chicago, IL, Nov. 2020.
63. J. Talamantes, C. Rumberger, M. Buganski, A. P. Sawchuk, and **H. Yu**, Experimental Measurement of Pulsatile Blood Pressure in 3D Printed Stenosed Arteries, The 73rd Annual Meeting of the American Physical Society's Division of Fluid Dynamics (Virtual), Chicago, IL, Nov. 2020.
64. X. Zhang, J. M. McDonough, and **H. Yu**, 3-D Discrete Dynamical System Based on Volumetric Lattice Boltzmann Equation, The 73rd Annual Meeting of the American Physical Society's Division of Fluid Dynamics (Virtual), Chicago, IL, Nov. 2020.
65. J. M. McDonough and **H. Yu**, A 3-D Poor Man's Boltzmann Equation, The 72nd Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Seattle, WA, Nov. 2019.
66. **H. Yu** and X. Zhang, Streaming Formulation in Volumetric Lattice Boltzmann Method and Its Improvement, The 72nd Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Seattle, WA, Nov. 2019.
67. X. Zhang, S. A. Abootorabi, H. Yokota, and **H. Yu**, Preliminary Study for Wall-shear Stress of Pulsatile Flows in 3-D Ducts, The 72nd Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Seattle, WA, Nov. 2019.
68. H. Wu, M. Khan, X. Du, A. P. Sawchuk, and **H. Yu**, Reliability Analysis for CTA-Based Non-invasive Pressure Quantification in Aortorenal Artery Systems, Basic Cardiovascular Sciences Scientific Sessions, Westin Boston Waterfront | Boston, MA, July 29–August 1, 2019.
69. **H. Yu** and R. Chen, Study of Bubble Coalescence in Microfluidics Using GPU Accelerated Lattice Boltzmann Boltzmann Method, The 31st International Conference on Parallel Computational Fluid Dynamics, Antalya, Turkey, May 2019
70. R. Chen, L. Zhu, and **H. Yu**, Detachment Dynamics Induced by Unequal Microbubble Coalescence, The 71st Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Atlanta, Georgia, Nov. 2018.
71. M. Khan, A. P. Sawchuk, X. Fang, RL, Motaganahalli, **H. Yu**, Volumetric vs. Linear Reduction of Arterial Stenosis for Trans-stenotic Pressure Gradient in Image-based Computational Hemodynamics, The 71st Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Atlanta, Georgia, Nov. 2018.
72. **H. Yu**, Image-based Engineering Assessment for Patient-Specific Cardiovascular Diseases toward Precision Medicine, The 2nd Annual International Conference on Mechanical Engineering, Athens, Greece, July 2018
73. **H. Yu**, S. An, J. Yao, and B. Gelfand, Numerical Study of Wall Shear Stress on Choroidal Endothelium, The 8th World Congress of Biomechanics, Dublin, Ireland, July 2018
74. **H. Yu**, R. Chen, S. An, and J. Yao, GPU Acceleration of Lattice Boltzmann Method for Complex Flows, The 30th International Conference on Parallel Computational Fluid Dynamics, Indianapolis, USA, May 2018.
75. R. Chen, **H. Yu**, and L. Zhu, Dynamics of Microbubble Coalescence Analysis Based on GPU Acceleration Lattice Boltzmann Method, The 30th International Conference on Parallel Computational Fluid Dynamics(ParCFD), Indianapolis, USA, May 2018.
76. M. Khan A. Deb, R. Chen, **H. Yu**, Q. Wu, Murray, R. Nathan, and A. P. Sawchuk, Noninvasive Quantification of Patient-specific Blood Pressure Gradient via Concurrent Computational and

- Experimental Fluid Dynamics, The 30th International Conference on Parallel Computational Fluid Dynamics (ParCFD), Indianapolis, USA, May 2018.
77. **H. Yu**, S. An, R. Chen, B. Kapadia, J. Yao, J. M. McDonough, InPore: GPU-accelerated Lattice Boltzmann Method for Image-based Pore-scale Porous Media Flows, The 29th International Conference on Parallel Computational Fluid Dynamics(ParCFD), Glasgow, United Kingdom, May 2017.
78. **H. Yu**, R. Chen, S. An, B. Gelfand, and J. Yao, Non-invasive quantification of hemodynamics in the human choriocapillaris, The 69th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Portland, Oregon, Nov. 2016.
79. A. P. Sawchuk, P. Patil, H. Zhu, **H. Yu**, R. Motaganahalli, M. C. Dalsing, Noninvasive measurement of renovascular resistance and the meaning and limitations of the renal resistance Index, Midwestern Vascular 2016, Columbus, OH, 09/8-10, 2016
116. Z. Wang, Y. Zhao, **H. Yu**, X. Chen, C. Lin, S. F. Kralik and A. P. Sawchuk, Fully parallelized lattice Boltzmann method for image segmentation, The Thirteenth International Conference for Mesoscopic Methods in Engineering and Science, Hamburg, Germany, July 2016
80. **H. Yu**, X. Chen, Z. Wang, C. Lin, S. F. Kralik, Y. Zhao, and A. P. Sawchuk, Effects of inflow/outflow boundary conditions on computational hemodynamics in human arteries, The Thirteenth International Conference for Mesoscopic Methods in Engineering and Science, Hamburg, Germany, July 2016
117. **H. Yu**, X. Chen, Z. Wang, R. Chen, C. Lin, S. F. Kralik, Y. Zhao, A. P. Sawchuk, Validity of Patient-specific Computational Hemodynamics for Noninvasive Quantification of Blood Flow, The 28th International Conference on Parallel Computational Fluid Dynamics(ParCFD), Kobe, Japan, May 2016.
118. R. Chen, **H. Yu**, L. Zhu, and T. Lee, Numerical Simulation and Analysis of Size Inequality on Microbubble Coalescence, The 28th International Conference on Parallel Computational Fluid Dynamics (PARCFD), Kobe, Japan, May 2016.
119. J. M. McDonough and **H. Yu**, Discrete dynamical system approximation to the Boltzmann equation for eddy-viscosity-free LES modeling of transitional flow, The 68th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Boston, Massachusetts, Nov. 2015.
120. **H. Yu**, X. Chen, R. Chen, Z. Wang, C. Lin, S. F. Kralik, and Y. Zhao, Validity of computational hemodynamics in human arteries based on 3D time-of-flight MR angiography and 2D electrocardiogram gated phase-contrast images, The 68th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Boston, Massachusetts, Nov. 2015.
121. R. Chen, L. Zhu, and **H. Yu**, Bubble dynamics in a micro-channel with a virtual check valve, The 68th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Boston, Massachusetts, Nov. 2015.
122. A. Mumbaraddi, **H. Yu**, A. P. Sawchuk, and M. Dalsing, Ansys Fluent versus Sim Vascular for 4-D patient-specific computational hemodynamics in renal arteries, The 68th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Boston, Massachusetts, Nov. 2015.
123. A. P. Sawchuk, **H. Yu**, A. Mumbaraddi, M. C. Dalsing, The Hemodynamics of Renovascular Hypertension and Atherosclerosis, Midwestern Vascular 2015, Sep. 10-12, 2015, Chicago, IL

124. **H. Yu**, Z. Wang, C. Zhang, A. P. Sawchuck, Y. Zhao, C. Lin, M. C. Dalsing, Y. Chen, A Unified Lattice Boltzmann Method for Patient-Specific Fluid Dynamics — From CT/MRI images to *in-vivo* flow and pressure quantification, *The 12th International Conference for Mesoscopic Methods in Engineering and Science (ICMMES)*, July 2015, Beijing, China
125. A. P. Sawchuk, A. Mumbaraddi, **H. Yu**, M. C. Dalsing, The Complex Hemodynamics of Renal Artery Atherosclerosis, *The 2015 Vascular Annual Meeting – The Society for Vascular Surgery*, Jun. 18-20, 2015, Chicago, IL
126. **H. Yu**, Z. Wang, C. Zhang, Nan Chen, Ye Zhao, Alan P. Sawchuck, Michael C. Dalsing, Shawn D. Teague, Yongguang Chen, GPU-accelerated Lattice Boltzmann method for anatomical extraction in patient-specific computational hemodynamics, *The 67th Annual Meeting of the American Physical Society's Division of Fluid Dynamics*, San Francisco, California, Nov. 2014.
127. **H. Yu**, Z. Wang, C. Zhang, N. Chen, A. P. Sawchuck, Y. Zhao, Y. Chen, M. C. Dalsing. A Unified Computational Tool for Patient-Specific Hemodynamics — From radiological images to *in-vivo* flow structures in human arteries, *2014 BMES Annual Meeting*, San Antonio, TX, October 2014
128. A. P. Sawchuk, **H. Yu**, and M. C. Dalsing, “Rethinking The Cause And Effect Relationship Between Renovascular Hypertension And Renal Artery Stenosis”, *Midwest Vascular 2014, the 38th Annual Meeting of the Society*, Coralville, IA, September 2014
129. **H. Yu** and R. Chen, GPU-accelerated Lattice Boltzmann method for decaying isotropic turbulence with/without rotation, *The 26th International Conference on Parallel Fluid Dynamics*, Trondheim, Norway, May 2014
130. **H. Yu**, Z. Wang, Y. Zhao, and S. D. Teague, Hemodynamics and Flow-structure Interaction in Patient-Specific Aorta Using Lattice Boltzmann Method, *The 66th Annual Meeting of the American Physical Society's Division of Fluid Dynamics*, Pittsburg, Pennsylvania, Nov. 2013.
131. **H. Yu**, X. Chen, and Y. Joglekar, PT Symmetry in Viscous Flow, *The 10th International Conference for Mesoscopic Methods in Engineering and Science (ICMMES)*, July 2013, Oxford, UK
132. **H. Yu**, R. Chen, and H. Wang, Inverse energy cascade in decaying isotropic turbulence, *The 65th Annual Meeting of the American Physical Society's Division of Fluid Dynamics*, San Diego, California, Nov. 2012.
133. N. Chen and **H. Yu**, Mechanism of axis-switching in low aspect-ratio rectangular jets, *The 65th Annual Meeting of the American Physical Society's Division of Fluid Dynamics*, San Diego, California, Nov. 2012.
134. D. Deep, **H. Yu**, and S. D. Teague, Volumetric Lattice Boltzmann Simulation for Blood Flow in Aorta Arteries, *The 65th Annual Meeting of the American Physical Society's Division of Fluid Dynamics*, San Diego, California, Nov. 2012.
135. **H. Yu**, Mass-conserved lattice Boltzmann method for fluid-structure interaction with willfully moving boundaries, *The 9th European Fluid Mechanics Conference*, Rome, Italy, Sep. 2012
136. **H. Yu**, R. Chen, H. Wang, Lattice Boltzmann simulation for decaying isotropic turbulence in the presence of rotation, *The 9th International Conference for Mesoscopic Methods in Engineering and Science*, Taibei, Taiwan, July 2012.
137. N. Chen and **H. Yu**, Revisit of axis-switching in low aspect-ratio rectangular jets, *The 9th International Conference for Mesoscopic Methods in Engineering and Science*, Taibei, Taiwan, July 2012.

138. H. Wang, **H. Yu**, P. Wang, Y. An, GPU parallel computation of lattice Boltzmann method for decaying isotropic turbulence in the presence of rotation, *The 9th International Conference for Mesoscopic Methods in Engineering and Science*, Taipei, Taiwan, July 2012.
139. **H. Yu**, C. Meneveau, Studying Lagrangian dynamics of turbulence using on-demand fluid particle tracking in a public turbulence database, *The 64th Annual Meeting of the American Physical Society's Division of Fluid Dynamics*, Baltimore, Maryland, Nov. 2011.
140. **H. Yu**, C. Meneveau, Public database-enabled analysis of Lagrangian statistics of isotropic turbulence near the Vieillefapsse tail, *The 63rd Annual Meeting of the American Physical Society's Division of Fluid Dynamics*, Long Beach, California, Nov. 2010.
141. **H. Yu**, C. Meneveau, Public database-enabled analysis of Lagrangian statistics in isotropic turbulence, *The 62nd Annual Meeting of the American Physical Society's Division of Fluid Dynamics*, Minneapolis, Minnesota, Nov. 2009.
142. **H. Yu**, Lattice Boltzmann method for DNS and LES of turbulence, *The Sixth International Conference for Mesoscopic Methods in Engineering and Science*, Guangzhou, China, July 2009.
143. **H. Yu** and D. Livescu, Compressible Rayleigh-Taylor Instability in Cylindrical Geometry, *The 11th International Workshop on the Physics of Compressible Turbulence Mixing (IWCPM)*, Santa Fe, New Mexico, July 2008.
144. **H. Yu**, N. Li, and R. Ecke, Transition characteristics of Natural Convection in low-aspect-ratio enclosures subject to Horizontal Temperature Gradient, *The Fifth International Conference for Mesoscopic Methods in Engineering and Science*, Amsterdam, The Northlands, June 2008.
145. **H. Yu**, Early growth of Rayleigh-Taylor instability in cylindrical geometry, *Workshop: Density Effects in Fluid Dynamics, Los Alamos National Laboratory*, Dec. 2007.
146. **H. Yu**, Linear Analysis of Rayleigh-Taylor instability in cylindrical geometry, *The 60th Annual Meeting of the American Physical Society's Division of Fluid Dynamics*, Salt Lake City, Utah, Nov. 2007.
147. **H. Yu**, Linear Analysis of Rayleigh-Taylor instability in cylindrical geometry, *CNLS Postdoc Seminar*, July 2007.
148. **H. Yu**, Aspect-ratio Effect on Natural Convection Subject to Horizontal Temperature Gradient, *The 59th Annual Meeting of the American Physical Society's Division of Fluid Dynamics*, Tampa, Nov. 2006.
149. **H. Yu**, Power-law scaling and transition characteristic of natural convection with horizontal temperature gradient, *Conference and Euromech Colloquium #480 on High Rayleigh Number Convection*, Trieste, Italy, Sep. 2006.
150. **H. Yu**, Numerical Investigation of Transition Characteristics of Natural Convection in Low Aspect-ratio Cavities, *The Third International Conference for Mesoscopic Methods in Engineering and Science*, Virginia, USA, July 2006.
151. **H. Yu**, Investigation of Oxygen Transfer Enhancement in Thermally Driven Cavities by Lattice Boltzmann Simulation, *American Physical Society March Meeting*, Baltimore, USA, Mar. 2006.
152. **H. Yu**, Investigation of Oxygen Transfer Enhancement in Thermally Driven Cavities by Lattice Boltzmann Simulation, *CNLS Postdoc Seminar*, Jan. 2006.
153. Lattice Boltzmann Method for Complex Flows, *Joint Los Alamos National Laboratory, Arizona State University, University of Arizona, and the University of New Mexico Conference*

on Los Alamos / Arizona Days — Emerging Paradigms in Nonlinear Science, CNLS, Los Alamos National Laboratory, Jan. 2006.

154. **H. Yu**, Investigation of rectangular jet instability and axis-switching using Lattice Boltzmann Method, ICMMES 2005 — The Second International Conference for Mesoscopic Methods in Engineering and Science, Hong Kong, China, July 2005.
155. **H. Yu**, Lattice Boltzmann Equation Simulations for Mixing and Reactions, X-3/CNLS, Los Alamos National Laboratory, Jan. 2005.
156. **H. Yu**, Lattice Boltzmann Method for Complex Flows, T-3, Los Alamos National Laboratory, Sep. 2006.
157. **H. Yu**, Turbulence Simulations Using Lattice Boltzmann Method, The City College of New York, Mar. 2005.
158. **H. Yu**, Lattice Boltzmann Equation Simulations for Mixing and Reactions, CNLS, Los Alamos National Laboratory, Jan. 2005.
159. **H. Yu**, LES of rectangular turbulence jet using lattice Boltzmann method, The 57th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Seattle, Nov. 2004.
160. **H. Yu**, Development of lattice Boltzmann models for fluid flows i) Binary mixing and ii) Axisymmetric flow computations, DSFD 2004--13th International Conference on the Discrete Simulation of Fluid Dynamics, Boston, Aug. 2004.
161. **H. Yu**, Lattice Boltzmann Simulation of Decaying Homogeneous Isotropic Turbulence With and Without System Rotations, The 56th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, New Jersey, Nov. 2003.
162. **H. Yu**, Lattice Boltzmann Method for Turbulent Combustion, The 55th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Dallas, Texas, Nov. 2002.
163. **H. Yu**, Moving boundary conditions in volumetric lattice Boltzmann method for incompressible flows, The 53rd Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Washington DC, Nov. 2000.

Conference Posters

164. **H. Yu**, Image-based and GPU-Accelerated Volumetric Lattice Boltzmann Method for Pore-scale Porous Media Flows, InterPore2024, 16th Annual Meeting & Conference Courses, May 13-17, 2024. Qingdao, China,
165. J. Talamantes, W. Hong, A. Sawchuk, and **H Yu**, A Pulsatile Flow Loop and Experimental measurement of In Vitro Blood Pressure in 3-D Printed Stenosed Arteries, The 74th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, November 21-23, 2021, Phoenix, AZ.
166. W. Hong, M. Islam, J. Talamantes, A. P. Sawchuk, and **H. Yu**, Doppler Ultrasound Assessment of Effects on Renal Resistance of Blood Flow in Human Aortorenal Systems, The 74th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, November 21-23, 2021, Phoenix, AZ.
167. M. Islam, H. Li, X. Du, and **H. Yu**, Supervised Surrogate Modeling for Hagen-Poiseuille and Womersley flows, The 74th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Phoenix, AZ, November 21-23, 2021.
168. S. Abootorabi, A. Tripathi, L. Davila, and **H. Yu**, Effects of Implant Separator Structure on Drug Delivery to the Posterior Eye, The 72nd Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Seattle, WA, Nov. 2019.

169. **H. Yu**, M. Khan, H. Wu, X. Du, A. P. Sawchuk, Uncertainty Quantification of Outflow Boundary Conditions for Noninvasive Pressure Quantification in Aortorenal Artery Systems, Summer Biomechanics, Bioengineering, and Biotransport Conference, Seven Springs, Pennsylvania, June 25 – 28, 2019,
170. **H. Yu**, M Khan, A. P. Sawchuk, Q. Wang, H. Lou, L. Zhang, X. Fang, H. Liang, and R. L. Motaganahalli, Fast, Non-invasive, and Patient-specific Assessment for Ischemic Severity of Arterial Stenosis, Vascular Discovery: From Genes to Medicine, Scientific Sessions 2019, Boston, Massachusetts, May 14–16, 2019.
171. Monsurul Khan, Alan P. Sawchuk, Anurag Deb, Rou Chen, Xin Fang, Chenke Xu, Raghu L. Motaganahalli, **H Yu**, Effective Three-element Windkessel Model based on Doppler Ultrasound Images for Noninvasive Quantification of Trans-stenotic Pressure Gradient in Aortorenal System, Basic Cardiovascular Sciences 2018 Scientific Sessions, organized by American Heart Association, San Antonio, Texas, July 30-August 2, 2018
172. **H. Yu**, A. Deb, M. Khan, R. Chen, Y. Yang, I-Wen Wang, Non-Invasive, Patient-Specific Assessment of LVAD Modeled with Consideration of LV Ejection and Function, Basic Cardiovascular Sciences 2018 Scientific Sessions, organized by American Heart Association, San Antonio, Texas, July 30-August 2, 2018
173. A. Deb, **H. Yu**, R. Chen, Y. Yang, and I-W Wang, Optimization of LVAD Implantation Varying OG location and/or Pumping Combination, Indiana Clinical and Translational Sciences Institute 9th Annual Meeting, Indianapolis, Indiana, Dec. 8. 2017,
174. **H. Yu**, A. Deb, M. Khan, J. Talamantes, R. Chen, A. P. Sawchuk, and M. C. Dalsing, Non-invasive Evaluation of Aortorenal Pressure Gradient, Indiana Clinical and Translational Sciences Institute 9th Annual Meeting, Indianapolis, Indiana, Dec. 8. 2017,
175. **H. Yu**, A. P. Sawchuk, M. C. Dasling, I-W Wang, InVascular: Filling the Gap between Non-invasive and Patient-specific Diagnose/Assessment and Cardiovascular Diseases/Surgeries, the 2017 IEEE Central Indiana section's Engineering Conference, Bloomington, Indiana, November 10-11, 2017.
***Best poster award <http://www.cis-ieee.org/encon2017/poster-contest.html>
176. **H. Yu**, A. Deb, R. Chen, A. P. Sawchuk, and M.. Dalsing Validity of Non-invasive Evaluation of Aortorenal Pressure Gradient, MIDWESTERN VASCULAR 2017, Chicago, IL, September 7-9, 2017
177. A. Deb, **H. Yu**, X. Chen, R. Chen, D. Wang, and I-W Wang, A noninvasive technique for fast assessment of Optimal LVAD Outflow Graft Implant Sites, The Basic Cardiovascular Sciences 2017 Scientific Sessions, Portland, Oregon July 10-13, 2017.
178. **H. Yu**, A. Deb, A. Mumaraddi, J. Talamantes, A. P. Sawchuk, and M. C. Dalsing, Patient-specific Computation for Complex Hemodynamics in Aortorenal Vessel System, IUPUI Imaging Research Symposium, Nov. 2016
179. **H. Yu**, X Chen, R Chen, Z. Wang, C. Lin, S. F. Kralik, and Y. Zhao, An Innovative Computational Technique to Assess Hemodynamic Abnormalities in Image-based Human Vessels, Indiana Clinical and Translational Sciences Institute 8th Annual Meeting, Indianapolis, Indiana, Sep. 2016
180. **H. Yu**, R. Chen, S. An, B. Gelfand, J. Yao, Computational Modeling and Quantification of Wall Shear Stress in Human Choriocapillaries— A Preliminary Study, Indiana Clinical and Translational Sciences Institute 8th Annual Meeting, Indianapolis, Indiana, Sep. 2016
181. **H. Yu**, A. Deb, X. Chen, Y. Zhan, and I-W Wang, A preliminary study of hemodynamics and WSS in aortic arch with alternative anastomosis of outflow graft for minimally invasive

- LVAD implantation, Indiana Clinical and Translational Sciences Institute 8th Annual Meeting, Indianapolis, Indiana, Sep. 2016
182. R. Chen, H. Yu, L. Zhu, T. Lee, and R. M. Patil, Inequality Effects on Microbubble Coalescence, IUPUI Research Day, April 2016
183. H. Yu, X. Chen, R. Chen, Z. Wang, C. Lin, S. F. Kralik, and Y. Zhao², Integration of MRI fast imaging and Patient-specific computational hemodynamics for noninvasive quantification of in vivo flow and pressure, IUPUI Imaging Research Symposium, Oct. 2015
184. H. Yu, A. Mumbaraddi, A. P. Sawchuk, M. C. Dalsing, Patient-specific computational hemodynamics for assessment of renal resistance due to renal artery stenosis, IUPUI Imaging Research Symposium, Oct. 2015
185. H. Yu, A. Mumbaraddi, X. Chen, A. P. Sawchuk, and M. C. Dalsing, Noninvasive Assessment of Renal Stenosis Severity Using Advanced Patient-specific Computational Modeling Technique, Indiana Clinical and Translational Sciences Institute Seventh Annual Meeting, Indianapolis, Indiana, Sep. 2015
186. H. Yu, Z. Wang, Y. Zhao, L. Chen, S. D. Teague, A. P. Sawchuk, and M. C. Dalsing, A Unified and GPU-accelerated Computational Tool for in-vivo Patient-Specific Fluid Dynamics in Human Body, IUPUI Innovation to Enterprise Forum & Showcase, Nov. 2014
187. R. Chen, W. Diao, Y. Cheng, L. Zhu, and H. Yu, Lattice Boltzmann Simulation of Self-driven Bubble Transport in a Micro-channel with a Virtual Check Valve, The 67th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, San Francisco, California, Nov. 2014
188. Y. Cao, J. Bontrager-Singer, M. R. Z. Farahani, D. D. Meng, H. Yu, L. Zhu, Development of a microfluidic gas generator from an efficient film-based micro-fabrication method. The 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences, San Antonio, TX, October 2014
189. E. Lima, D. Deep, and H. Yu, Volumetric Lattice Boltzmann Simulation for Fluid dynamics and Turbulence in Practical Syringes, The 65th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, San Diego, California, Nov. 2012.

RESEARCH SUPPORT

1. PI, "New Self-regulating LES Model for Turbulent Pulsatile Flows with Applications and Uncertainty Quantification", Source of Support: XSEDE (NSF), PSC Bridges-2 Storage (Ocean): 20,504.0 GB and PSC Bridges-2 GPU (Bridges-2 GPU): 28,259.0 GPU Hours 16,503, 01/01 – 04/30/2024.
2. PI, "GPU-accelerated Lattice-Boltzmann method for simulation of dispersing multi-phase flows", Source of Support: Los Alamos National Laboratory, 05/25/2023-05/24/2024.
3. PI, "4D-ICH: A New and Non-invasive Modality to Characterize Hemodynamic Parameters and Flow patterns for Severe Asymptotic Carotid Stenoses", Source of Support: Institute of Integrative AI, IUPUI, 10/01/2022-09/31/2023.
4. PI, "Image-Based Computational and Experimental Fluid Dynamics for Biomedical Flows", Source of Support: Multidisciplinary Undergraduate Research Institute (MURI), IUPUI, 06/01-07/31/2022.
5. PI, "New Self-regulating LES Model for Turbulent Pulsatile Flows with Applications and Uncertainty Quantification", Source of Support: XSEDE (NSF), PSC Bridges-2 Storage

(Ocean): 20,504.0 GB and PSC Bridges-2 GPU (Bridges-2 GPU): 28,259.0 GPU Hours 3,000.0, 10/01/2021 – 12/31/2024

6. PI, "Pathophysiology of choroidal hemodynamics in AMD", Source of Support: Bright Focus Foundation, 09/01/2020-08/31/2022.
7. PI, "A Non-invasive and Personalized Hemodynamic Index for Assessing the Severity of Coronary Stenosis", Source of Support: Indiana University Krannert Institute of Cardiology, Dr. Charles Fisch Cardiovascular Research Endowment, 07/01/2020-06/30/2022
8. PI, "Image-based noninvasive evaluation of blood pressure in diseased human vessels with uncertainty quantification", Source of Support: Multidisciplinary Undergraduate Research Institute (MURI), IUPUI, 06/01/2019-07/31/2020.
9. PI, "New Self-regulating LES Model for Turbulent Pulsatile Flows with Applications and Uncertainty Quantification", Source of Support: XSEDE (NSF), PSC GPU (Bridges GPU): 26,000.0 GPU Hours PSC Storage (Bridges Pylon): 3,000.0, 04/01/2020 – 03/31/2021
10. PI, "Computational and Experimental Assessment for Ischemic Severity of Arterial Stenosis based on Patient's Radiological Images", Source of Support: Multidisciplinary Undergraduate Research Institute (MURI), IUPUI, 06/01-07/31/2019.
11. PI, "Non-invasive, Fast, and Patient-specific Assessment of True Severity of Arterial Stenosis", Source of Support: the Purdue Institute of Inflammation, Immunology and Infectious Disease (PI4D), 08/01/2019-07/31/2021.
12. PI, "Non-invasive and fast Computational Assessment of Blood Flow Resistance for Patients with Arterial Stenosis", Source of Support: BBRC/INDI, 12/01/2018-11/30/2019
13. PI, "Bio-inspired Implants for Controlled Drug Delivery to the Posterior Eye", Source of Support: IU-MSI, 10/01/2018-08/31/2019.
14. PI, "Collaborative Research: Mesoscopic Self-transitioning Large-eddy Modeling for Transition to Turbulence and Relaminarization in Pulsatile Flows", Source of Support: NSF/CBET/FD-1803845, 08/15/2018-07/31/2021.
15. PI, "Patient-specific Computational Modeling and Analysis for Cardiovascular Abnormalities Using GPU-accelerated Lattice Boltzmann Method", Source of Support: XSEDE (NSF), 390,384.0 Core-hours TACC Long-term tape Archival Storage (Ranch): 5,962.0 GB, 01/01/2017 – 12/31/2017
16. PI, "Computational modeling of human choroidal hemodynamics", Source of Support: the University of Kentucky, 06/01/2016 – 05/31/2017
17. PI, "Non-invasive and fast hemodynamic flow assessment for alternative LVAD implant techniques", Source of Support: IU Health CV Service Line Research, 08/01/2016-07/31/2018
18. PI, "Development of a unified and GPU accelerated computational tool for oil/gas flows in digital rocks", Source of Support: International Research Development Fund (IRDF) Grant, 01/01-12/31/2016, IUPUI
19. PI, "Development of an Uncertainty Quantification Framework for Secondary Computational Analysis to Derive and Validate a Noninvasive Renal Resistive Index", Source of Support: XSEDE (NSF), TACC Dell PowerEdge C8220 Cluster with Intel Xeon Phi coprocessors (Stampede): 50,000.0 SUs TACC Long - term tape Archival Storage (Ranch): 500.0 GB SDSC Medium - term disk storage (Data Oasis): 500.0 GB SDSC Dell Cluster with Intel Haswell Processors (Comet): 50,000.0 SUs, 10/01/2016 – 12/31/2016
20. PI, "Integration of CT/MRI Angiography and Doppler Sonography with Fast Computational Modeling Analysis into Noninvasive Diagnose of Renal Stenosis Severity", Source of Support:

Renal Imaging Technology Development Program (RITDP), IUPUI Research Center for Quantitative Renal Imaging, 06/29/2015- 06/28/2016

21. Co-I, "Integration of Patient-specific Computational Hemodynamics and Vessel Wall Shear Stress Analysis into Diagnostic MRI of Vascular Diseases", Source of Support: IU Health Values Fund for Research, 2014-2016. PI: Stephen F. Kralik from the Department of Radiology of IU Medical School
22. PI, "Patient-specific computation and analysis for hemodynamic indicators", Source of Support: Release Time for Research (RTR), IUPUI, 08/01/2014 – 07/31/2015
23. Co-PI, "Collaborative Research: Self-circulating, self-regulating microreactor for on-chip gas generation from liquid reactants", Source of Support: NSF (CBET-1264739), 2013-2016. PI; Likun Zhu from Mechanical Engineering Department, IUPUI
24. PI, "Visualizing and experiencing turbulence from numerical experiments", Source of Support: Multidisciplinary Undergraduate Research Institute (MURI) Program Grant, June-August, 2012, IUPUI
25. PI, "GPU-LBM computation for aerodynamics of high-speed ground transportation vehicles", Source of Support: International Development Fund (IDF) Grant, 2012, IUPUI
26. PI, "Lattice Boltzmann method for turbulent combustion", Source of Support: Research Support Funds Grant (RSFG), 2012, IUPUI
27. PI, "Lagrangian simulation and analysis of particle dispersion in rotational turbulence", Source of Support: CNSF (ID: 11072229), 2011-2013.

Donated Research Facilities

28. Philips HD 5000 duplex scanner, Source of Support: IU health SIMS Lab,
29. Mock Vascular Circulation Loop, Source of Support: Dr. Alan P. Sawchuk, Vascular Surgery Department, IU School of Medicine.

Research Awards

30. **The Third Prize Winner** of Disease Diagnostics INventors Challenge competition from Indiana CTSI (Clinical and Translational Sciences Institute), 05/ 2019
31. **IU Health CV Service Line Research Award** from The Office of Vice President of IU Health, Cardiovascular Service Line. 2016
32. **EMPOWER** (Enhanced Mentoring Program with Opportunities for Ways to Excel in Research) **Award** from Office of Vice Chancellor for Research, IUPUI. 01/01-12/31/2014.
33. **Research Time Release (RTR) AWARD** from Office of Vice Chancellor for Research, IUPUI. 08/01/2014-07/31/2025
34. **NSF CAREER Jump Start Award** from Office of Vice Chancellor for Research, IUPUI. 01/01-12/31/2012.

Travel Support

35. **Full travel support** from Santa Catarina State University, Brazil, for a two-week research visit. 08/03/-16/2024
36. **Full travel support** from Los Alamos National Laboratory for research collaborations. 07/01/2021-06/30/2022.
37. **Full travel support and honorarium** from City College of New York to give an invited talk, 08/28-29/2019.

38. **Full travel and registration support** from IU-MSI STEM Initiative for one-week *Grant Writing Boot Camp*, Nashville, Indiana, 02/02-08/2019
39. **Full travel and registration support** from the Department of Vascular Surgery, IU School of Medicine to give an oral presentation at the annual meeting of Midwestern Vascular Surgical Society, St. Louis, Missouri, 09/14-15/2018.
40. **Full travel support** from IU Office of The Vice International Affairs for the International Summer faculty Exchange Program: a one-month visit to Zhejiang University School of Medicine, Hangzhou, China, 06/01-30/2018.
41. **Full travel support** from IU-MSI STEM Initiative for a Faculty Exchange Program with one faculty and three graduate students visiting UC Merced, Merced, California, 11/19-22/2017.
42. **Full travel and registration support** from the School of Engineering and Technology, IUPUI to attend The National Effective Teaching Institute Workshop in Columbus, Ohio. 06/22-24/2017.
43. **Full international travel support** from US NSF through the conference to attend the Thirteenth International Conference for Mesoscopic Methods in Engineering and Science held in Hamburg, Germany, 07/18-22/2016.
44. **Full international travel support** from US NSF through the conference to attend The Twelfth International Conference for Mesoscopic Methods in Engineering and Science held in Beijing, China. 07/20-24/2015.
45. **Full travel support** from the Office of Vice Chancellor for Research, IUPUI to attend NSF CAREER workshop held in Tampa, Florida. 04/08-09/2013

RESEARCH SUPERVISION

Advisory Committee Chair for Thesis, Mechanical Engineering, IUPUI

- 2024 Ph.D., Xiaoyu Zhang, "Direct Numerical Simulation And A New 3-D Discrete Dynamic System For Image-based Complex Flows Using Volumetric Lattice Boltzmann Method"
- 2019 Ph.D., Rou Chen, "GPU accelerated Lattice Boltzmann Analysis for Dynamics of Bubble Coalescence in Microchannels"
- 2022 M.S., Talamantes Jr, John E, "Experimental Measurement of Bollood Pressure in 3-D Printed Vessels"
- 2022 M.S., Islam, Md Mahfuzl, "Image Segmentation, Parametric Study, and Supervised Surrogate Modeling of Image-based Computational Fluid Dynamics".
- 2020 M.S., Abootorabi, Seyedalireza. "Computational Fluid Dynamics for Modeling and Simulation of Intraocular Drug Delivery and Wall Shear Stress in Pulsatile Flows in Pulsatile Flows,"
- 2019 M.S., Monsurul Khan, "Image-based Computational Hemodynamics for Non-invasive and patient-specific assessment of arterial stenosis"
- 2013 M.S., Debanjan Deep, "A Study of Blood Flow in Normal and Diseased Aorta"
- 2013 M.S., Nan Chen, "Mechanisms of Axis-switching and Saddle-back Velocity Profile in Laminar and Turbulent Rectangular Jets"

Advisory Committee Member for Thesis

- 2024, Ph. D., Huiru Li, Mechanical Engineering, IUPUI
- 2022 Ph.D., Hao Wu, Mechanical Engineering, IUPUI
- 2021 Ph.D., Joan Gomez, Mechanical Engineering, City College of New York

- 2018 Ph.D., Zengting Bai, Mathematical Sciences, IUPUI
- 2024 M.S. Jared C. Miller, Mechanical and Energy Engineering, IUPUI
- 2021 M.S., Richard Zachary Rowe, Mechanical and Energy Engineering, IUPUI
- 2017 M.S., Md Minal Nahin, Mechanical and Energy Engineering, IUPUI
M.S., Shuyi Zhou, Mechanical Engineering, IUPUI
M.S., Vaibhav R. Shrivastav, Mechanical Engineering, IUPUI
- 2015 M.S., Arash Jamali, Mechanical Engineering, IUPUI
M.S., Kyong-Yup Paik, Mechanical Engineering, IUPUI
M.S., Md Nazmuzzaman Khan, Mechanical Engineering, IUPUI
M.S., Yuanzhi Cao, Mechanical Engineering, IUPUI
- 2014 M.S., Spandana Gannavaram, Mechanical Engineering, IUPUI
M.S., Zijie Ou, Mechanical Engineering, Purdue University
- 2013 M.S., Prasanna Chinnathambi, Mechanical Engineering, IUPUI
M.S., Nathan Fitzpatrick, Mechanical Engineering, IUPUI

Mentored Research Students at IUPUI

Current students:

- 2022 – now, Ph.D., Matthew Thomas Blubaugh
- 2020 – now, Ph.D., Weichen Hong

Former students

Ph.D.

- 2018 – 2024 Xiaoyu Zhang
- 2014 – 2019 Rou Chen
- 2015 – 2017 Xi Chen
- 2013 – 2014 Nan Chen

MS

- 2020 – 2022 Md Mahfuzl Islam
- 2016 – 2022 John Jr. Talamantes,
- 2019 – 2021 Seyedalireza (Arya) Abootorabi
- 2017 – 2019 Monsurul Khan
- 2015 – 2018 Anurag Deb
- 2015 – 2018 Avinash Mumbaraddi
- 2015 01 – 05: Srujan R. Jambula
- 2011 – 2013 Debanjan Deep
- 2011 – 2013 Nan Chen

Undergraduate

- 2024 – ME(PU): Vindhya Mahapatruni Ganti
- 2022 Summer MURI (IUPUI): Jessica Burden

- 2020 Summer MURI (IUPUI): Anu Kadampelil, Hassan Alsalla, Jaison George,
- Sanika Kotnis, Macallister Smolik, Hussain Alakeely
- 2019 – 2020 Intern (IUPUI): Charles B Rumberger, Meredith Buganski
- 2019 Summer MURI (IUPUI): Zoe Yang, Shaurya Doger, Melody Hsieh, Charles B Rumberger, Meredith Buganski
- 2016 Summer Intern (IUPUI): Zhenya Guo, Yuting Zan, Jianhuan Zeng
- 2014 – 2016 Intern (IUPUI): Raveena Patil
- 2012 Summer MURI (IUPUI): Everton Lima, Sam Kukadia

High School Students

- 11/2022–: Austin Zan (Sophomore), Auburn High School, Alabama
- 2021 06 – 08 NSF ITEST (Innovative Technology Experiences for Students and Teachers) Project:
 - Mebele Onwuaduegbo (Avon High school, Indiana). Senior
 - Melitta Oppenheim (Bruriah High School for Girls, New Jersey). Senior

Visiting students

National

- 07/2021 – 12/2022: Manhai Li (Undergraduate), Ohio State University
- 2021 05 – 07: Hongda Lin (Undergraduate), Ohio State University
- 2016 01 – 07: Zhiqiang Wang (Ph.D.), Kent State University, Ohio
- 2015 05– 06: Zhiqiang Wang (Ph.D.), Kent State University, Ohio

International

- 2019 – 2020: Chenbin Rong (MS) and Zhihao Zhu (MS), Zhejiang University of Science and Technology, China
- 2018 02 – 08: Xin Jin (MS) and Yan Gu (MS), Zhejiang University of Science and Technology, China.
- 2016 – 2017: Sengyou An (MS), China University of Petroleum, Qingdao, China
- 2012 – 2014: Rou Chen (MS), Zhejiang Normal University, China
- 2012 04 – 12: Xi Chen (MS), Zhejiang Normal University, China
- 2012 03 – 04: Chuan Tian (MS), Peking University, China

TEACHING

COURSES

- Courses in Mechanical Engineering, routinely taught at IUPUI from 2011 to 2024 and PU since 2024
 - ME 200 Engineering Thermodynamics
 - ME 405 Seminar & Fundamentals of Engineering Review
 - ME 462 Capstone Design

- ME 491 Engineering Projects (undergraduate)
- ME 500 Advanced Thermodynamics
- ME 509 Intermediate Fluid Dynamics
- ME 520 Imaging-based Computational Hemodynamics for Cardiovascular Assessment
- ME 591 Engineering Projects (graduate)
- ME 597 Kinetic Theory & Computational Modeling in Fluid Dynamics
- ME 60101 Turbulence and Computational Modeling
- ME 614 Computational Fluid Dynamics
- **Courses in Physics** (~ IUPUI curriculum), taught at Zhejiang Normal University, China, before 2000
 - PHYS 15200 Mechanics
 - PHYS 21800/21900 General Physics
 - PHYS 41600 Thermal Physics
 - PHYS 50100 Physics Science
 - PHYS 51000 Physical Mechanics
- **Course in the Chinese Language for Foreigners**, taught in International, Chinese Language & Culture Center, Tsinghua University, China in 1998-1999
 - Elementary Chinese — Oral Communication
 - Elementary Chinese — Newspaper Reading

Outreach activities:

- 2018 **Rolls-Royce Museum visit**, ME500, 30 students attended.
- 2013 **Carrier HVAC trip**, ME200, 20 students attended.
- 2012 **Carrier HVAC trip**, ME200, 60 students attended.

Sponsored/Mentored Capstone Design Projects (ME462), IUPUI

1. 2024 Fall: Adjustable Arterial Test Box (Phase 2), Morgan Anne Hamby, Clayton Levi Scherer, Derek Andre Maue, Eryn Janae and Buehler
2. 2024 Spring: Adjustable Arterial Test Box (Phase 1), Amanda Weiderman, Ben Varner, Ella Murphy-Kalkbrenner, Kaylee TenBarge, Robert Nussman
3. 2023 Spring: Design and Prototype Compliance Elements for Mock Circulation Loop, Jerran Leakes, Skyler Goff, Tyler Spencer, Tosin Bolarin, Eric Petersen.
4. 2022 Spring: Mounting Device for Artificial and Real Human Arteries, Duante Berry, Nick Hanas, Daniel Mills, Daniela Salazar-Perez, Braden Weilbaker.
5. 2021 Fall: Pulsatile Heart Pump, Phase II. Michael Waddell, Soumia Hassane, Chase Swingle, Abdulrahman Alotaib.
6. 2021 Fall: Compliance Element for Image-based Biological Fluid Mechanics. Joe Colbert, Victor Popov, Hassan Alshafie, and Darren Dlima.
7. 2021 Spring: Pulsatile Heart Pump, Phase I, Le Bao, Eduardo Chacon, Shannon Gray, GiaHung Tat, Athul Kumar, Eric McIntire, Mohammed Mistarihi.
8. 2021 Spring: Artery Mounting System, Phase II, Malcolm Butler, Amanda Beall, Gabby Goeke, Brendan Kelly, Sydney Ishmael, Clair O'Brien.

9. 2020 Fall: Artery Mounting System Design, Phase I. Logan Earlywine, Blayre Underhill, Riyadh Althiyabi, Mark Manda.
10. 2020 Spring: Arterial Mounting Apparatus. Daniel Biehl, Catrionna Bruce, Holly Dunn, Bradley Marcum, Muhammad Pirzada.
11. 2018 Spring: Experimental Measurement of Arterial Blood Pressure. Joshua Etchberger, Helen Heimark, Brodie Meyer, Andrew Ozga, Ryan Straughn.
12. 2017 Spring: An Advanced Design for Viscometer Apparatus in ME Fluid Lab. Ahmed Al Nooraldeen, Boliang Wu, Curt Collingwood, Grant Gieringer, Hassan Obaidan, Tianyu Song, YoungHoon Kwon.
13. 2016 Fall: Water Tunnel. Kailiang Cheng, Andrea Hammans, Joe Leineweber, Daniel Robinson, Jian Xie, and Hongkun Zhu.
14. 2014 Fall: Human Aortic Renal Artery Study. Brandon Fricke, Orry Hefner, Evan Hill, Matt Jarvi, and Jomar Mendoza.

----- **SERVICE** -----

ADMINISTRATIVE SERVICE

Department of Mechanical Engineering, Purdue West Lafayette

- 2024: Faculty representative for Purdue Engineering Virtual Graduate Showcase

Purdue University

- 2024-2026: Purdue University Senate
- 2024: Apple Scholars PhD Fellowship Review Panel (5 applications)

Department of Mechanical, PU

- 2024 – : Capstone Design Sponsor

Department of Mechanical and Energy Engineering (MEE, IUPUI)

- 2014 – 2024: Capstone Design Sponsor
- 2011 – 2024: Capstone Design Jury
- 2020 – 2024: Ph.D. Fluid Area Exam Committee (Chair)
- 2019 – 2024: MEE Graduate Education Committee (member)
- 2019 – 2021: MEE Research Committee (member)
- 2019 – 2020: Ph.D. Math Area Exam Committee (Chair)
- 2019, Search Committee for a clinical faculty position specializing in Intellectual Property in the Engineering Design program (Chair)
- 2015: Mediator to connect faculty of Mechanical Engineering Department to physicians of IU Health, cardiovascular service line to establish Engineering-Medicine Collaboration.
- 2015: General Search Committee for a tenure-track position (Member)
- 2014 – 2015: ME Graduate Research and Education Committee (Member)
- 2014: Thermal Search Committee for a tenure-track position (Member)
- 2013: Nano Search Committee for a tenure-track position (Member)
- 2012 – 2014: Graduate Seminar Committee (Chair)

Purdue School of Engineering and Technology (PSET)

- 2018 – 2024: Computing Resources Committee (Member)

- 2019 – 2021: Faculty Senate Representatives

Indiana University-Purdue University, Indianapolis (IUPUI)

- 2021 – 2023: IUPUI Faculty Council, Board of Review Pool
- 2021: Reviewer of Mathematical Science Program
- 2020 – 2021: IUPUI Faculty Council at-Large Representatives

IU Health

- **360 Reviewer** for Clinical Research Nurse I in Division IN-CARD, 2020
- **Mini Course Instructor** for Maymester program – Integrative Biomedical Engineering Cardiovascular Science Maymester Collaboration with Weldon School of Biomedical Engineering Purdue University, 05/09/2018
- **Mini Course Instructor** for Maymester program – Integrative Biomedical Engineering Cardiovascular Science Maymester Collaboration with Weldon School of Biomedical Engineering Purdue University, 05/20/2016
- **Mediator** to connect faculty of Mechanical Engineering Department to physicians of IU Health, cardiovascular service line to establish Engineering-Medicine Collaboration. 2015

PROFESSIONAL SERVICE

Panel Service

- NIH/CTIS, June 2024
- NSF/SBIR-STTR, Medical Device, April 2023
- NSF/SBIR-STTR, Wearables & General Medical Devices, March 2022
- NSF/SBIR-STTR, Biomedical Technologies, December 2022
- NSF/SBIR-STTR, Diagnostics and Monitoring, June 2021
- NSF/SBIR-STTR, Diagnostics, April 2020
- NSF/SBIR-STTR, Medical Devices, May 2020
- NSF/SBIR-STTR, COVID-19, June 2020
- NSF/CSSI, E3 ENG Elements, Jan 2020
- NSF/CBET, Complex Fluids, March 2017
- NSF/CBET/CDS&E, March 2016
- NSF/GRFP/Mechanical Engineering II, December 2015
- Responsible Conduct of Research (RCR) Series: Intellectual Property session, IUPUI, August 2015
- NSF/GRFP/Mechanical Engineering II, December 2014

Editorial Service

- **Leading Guest Editor** of two Special Issues on Mock Circulation Loops for Image-based Experimental Hemodynamics and Digital Technologies for Oil Recovery and Sustainability, *Fluids*, MDPI. 2024 –
- **Guest Editor** of a special issue (https://www.mdpi.com/journal/fluids/special_issues/Imaged_Biomedical_Flows) on Image-

based Computational and Experimental Biomedical Flows, Fluids
(<http://www.mdpi.com/journal/fluids/>), 05/2021 – 2024

- **Journal Topic Editor** (https://www.mdpi.com/journal/fluids/topic_editors), *Fluids*, 2020 – present
- **Guest Editor** (<https://www.sciencedirect.com/journal/computers-and-fluids/special-issue/10CQH3WZPZV>), Special Issue on 30th International Conference on Parallel Computational Fluid Dynamics, *Computer & Fluids*, ELSEVIER, 2018-2019
- **Member of Editorial Board**, *International Journal of Mechatronics and Automotive Research* (IJMAR), 2017 – current
- **Member of Editorial Board**, *International Journal of Bioinformatics & Biological Systems* (IJBBS) (https://scidoc.org/editorial_board36.php), 2016 – current
- **Editor and Reviewer** of the Internet journal *Communication in Nonlinear Sciences & Numerical Simulation*, 1996-1998, published by the Peking University Nonlinear Science Center at the time.
- **Editor** of the magazine *Physics Teaching & Studying for Secondary Education*: 1984 - 1986, Published by the Physics Department of Zhejiang Normal University

International services

- **Judge of SCUDEM** (SIMIODE Challenge Using Differential Equations Modeling) (<https://simiode.org/>), 11/2020.
- **External Ph.D. Dissertation Reviewer**: Department of Mechanical Engineering, Indian Institute of Technology Madras, India, 02-12/2020
- **External Peer Review** of a proposal for The LEaDing Fellows Postdocs Programme, LEaDing Fellows Panel (LFP), The Netherlands. 05/2018
- **External Ph.D. Dissertation Reviewer**: Department of Applied Mechanics, Indian Institute of Technology Delhi, India, 07-10/2017

Conference Services

- **Session Chair** of The 77th Annual Meeting of the APS Division of Fluid Dynamics, Salt Lake City, UT, November 24 - 26, 2024
- **Leading Organizer** (<https://eccomas2024.org/event/area/4f1bb154-5968-11ee-a4f3-000c29ddfc0c>) of Mini-Symposium 192 - Kinetic-based Computational Fluid Dynamics for Continuum and Rarefied Flows, The 9th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS), Lisboa, Portugal, June 2024
- **Member of Scientific Committee**, International Conference on Transformative Technologies for Mechanical, Automotive and Space Applications (ICTTMASA-2024) at Symbiosis Institute of Technology (SIT), Pune, India, September 2024.
- **International Advisory Committee Member** (<http://www.parcfd.org/#hidden-2>), International Conference on Parallel Computational Fluid Dynamics (ParCFD), 2018 – current
- **Local Organization Committee Member** (<https://www.apsdfd2022.org/conference-info/organizers-dfd-leadership/>), The 75th Annual Meeting of the American Physical Society's Division of Fluid Dynamics (APS-DFD 2022), Indianapolis, November 2022

- **Session Chair**, The 31st International Conference on Parallel Computational Fluid Dynamics, Antalya, Turkey, May 2019
- **Judge** for ASME-BED Student Paper Competition, The 8th World Congress of Biomechanics, July 2018, Dublin, Ireland
- **Chairwoman**, the 30th International Conference on Parallel Computational Fluid Dynamics, May 2018, Indianapolis, USA
- **Co-organizer**, Mini-Symposium 4.23 at 8th International Conference on Porous Media, May 9-12, 2016, Cincinnati, Ohio. (Organizer, Dr. Parisa Mirbod, Clarkson; Co-Organizer, Dr. Qianhong Wu, Villanova)
- **Session Chair**, The 27th International Conference on Parallel Computational Fluid Dynamics Parallel CFD”, Montreal, Canada, May 2015.
- **Session Chair**, *The 12th International Conference for Mesoscopic Methods in Engineering and Science (ICMMES)*, Beijing, China, July 2015,
- **Local Organization Committee Member**, *The 61st Annual Meeting of the American Physical Society's Division of Fluid Dynamics*, San Antonio, TX, Nov. 2008
- **Session Chair**, *The 61st Annual Meeting of the American Physical Society's Division of Fluid Dynamics*, San Antonio, TX, Nov. 2008
- **Program Coordinator**, Summer Student Seminar Series, Center of Nonlinear Studies, Los Alamos National Laboratory, 2008
- **Session Chair**, *The 59th Annual Meeting of the American Physical Society's Division of Fluid Dynamics*, Tampa, Nov. 2006
- **Program Coordinator** Teaching assistant training & evaluation program (TATEP), Texas A&M University, summer, 2004.

Diversity, Equity, and Inclusion (DEI) activities and outreaches:

- June 24, 2021: presented a nontechnical research presentation for joint youth programs of the Minority Engineering Advancement Program (MEAP) and Preparing Outstanding Women for Engineering Roles and Information Technology (POWER+IT) Summer Camp. 45 high school students in grades 9-12 attended the seminar with curiosity and enthusiasm about STEM
- May 13, 2021: Exposed the biomedical research project to 10 high school students from Indiana in the Nanotechnology summer camp organized by Integrated Nanosystems Development Institute (INDI), IUPUI, as part of INDI's NSF-ITEST program. Two female high school students, mentored by a female Ph.D. student to work in Yu's ICFD lab for 6 weeks for the 1st-hand experience of research.
- July 21, 2020: Served as an invited speaker on a plenary session at the 5th Annual Faculty Research Development Institute (FRDI) entitled “Faculty Strategies for Focus and Productivity” focusing on productivity, priority, and balance between personal life and professional career. 130 attendees from Indiana University (IU) and its Minority Serving Institutions.
- June 1, 2020: exposed the medical research project to the Multidisciplinary Undergraduate Research Institute (MURI) students at IUPUI.
- July 20, 2016: served as a Session Presenter in Minority Engineering Advancement Program, IUPUI. 20 minority middle school students in grades 7-8 attended the session with curiosity and enthusiasm about STEM

- July 09, 2014: served as a Session Presenter in Minority Engineering Advancement Program, IUPUI. 20 minority middle school students in grades 7-8 attended the session with curiosity and enthusiasm about STEM.

Review Services

- 2011- current: **Peer review of 50+** papers for over 20 journals in Fluid and Flow, Computational Fluid Dynamics, Cardiovascular Flows, etc.
- 2021: **External review** of the candidacy of Assistant Professor in the Research Track, Department of Cardiac Surgery Smidt Heart Institute Cedars-Sinai Medical Center, California
- 2018: **External review** of Tenure and Promotion to Associate Professor, Michigan Technological University, Houghton, Michigan, 2018
- 2015: **Peer review** of 9 abstracts for Annual Meeting - Biomedical Engineering Society
- 2014: **Peer review** of 3 abstracts for Annual Meeting - Biomedical Engineering Society

Mentoring Services

- 08-12/2018: **Rolls-Royce project mentor** for an undergraduate student to study the tail section boundary layer with varying flight conditions.
- 08/25-28/2013: **Faculty mentor** for Zhejiang Visiting group to IUPUI,
- 06/01- 07/31, 2006: **Summer Student Mentor** for a Ph. D. student from Idaho National Lab, Los Alamos National Lab
- 06/01- 07/31, 2003: **Senior Teaching Assistant Mentor** Teaching assistant training & evaluation program (TATEP), Texas A&M University, summer

Appearances in Media

- 2018: [Indiana University IT News & Events](https://itnews.iu.edu/articles/2018/parallel-computing-conference-to-bring-experts-to-indianapolis.php): “Computational fluid dynamics play a critical role in science and engineering discovery, and we are excited to have the 30th ParCFD conference come back to Indianapolis.— Whitney Yu, ParCFD conference chair and associate professor, IUPUI Department of Mechanical Engineering”.
<https://itnews.iu.edu/articles/2018/parallel-computing-conference-to-bring-experts-to-indianapolis.php>