Paulo Yu

Professional | yup@uwplatt.edu | +1 818 746 7295

Education

2018 - 2021 **Doctor of Philosophy - Mechanical Engineering**
University of Idaho (UI)
Dissertation Title: "Application of Modal Decomposition to Study Unsteady Flow in Aneurysms" | Major Professor: Vibhav Durgesh

2015 - 2018 **Master of Science - Mechanical Engineering**
California State University, Northridge (CSUN)
Thesis Title: "Experimental Study on Impact of Inflow Conditions on Large-Scale Flow Structures in an Aneurysm" | Major Professor: Vibhav Durgesh

2011-2015 **Bachelor of Science - Mechanical Engineering**
California State University, Northridge (CSUN)

2007 - 2013 **Associate of Arts - General Studies with STEM Emphasis**
Los Angeles Pierce College (LAPC)

Academic Appointment

2024-Present **Assistant Professor**
Mechanical and Industrial Engineering, University of Wisconsin-Platteville (UWP)
Platteville, Wisconsin, USA

Research

Journal Publications (In Preparation)

- **Yu P.**, Durgesh V. Modal analysis in aneurysm flow using Proper Orthogonal Decomposition (POD), Dynamic Mode Decomposition (DMD), and Spectral POD. Spring Nature Journal (2026).

Journal Publications

- **Yu P.**, Baker M., Taslakyan L., Strawn D., Möller G. Reactive Filtration Water Treatment: A Retrospective Review of Sustainable Sand Filtration Re-Engineered for Advanced Nutrient Removal and Recovery, Micropollutant Destructive Removal, and Net-Negative CO_2e Emissions with Biochar. MDPI. (2025).
- **Yu P.**, Baker M., Crump A., Vogler M., Strawn D.G., Möller G. Biochar integrated reactive filtration of wastewater for P removal and recovery, micropollutant catalytic oxidation, and negative CO_2e: Process operation and mechanism. Water Environment Research (2023) (**Cover Article in September 2023 issue**).
- Madkour F., Lowry M., Ahmed I., Hammad A., Durgesh V., **Yu P.** Analysis of Wind Force on Cyclists from Passing Vehicles. Journal of Transportation Research Record (2023).
- Anderson M., Durgesh V., Baker M., **Yu P.**, Möller G. Biomimetic crossflow filtration with wave minimal surface geometry for particulate water treatment. PLOS Water 2.1 (2023): e0000055.
- **Yu P.**, Durgesh V. Experimental study of flow structures' impact to the fluid parameters in saccular aneurysm models. Experimental Thermal and Fluid Science. 2022; p. 110675. (**Editor's Choice**

in 2023)

- **Yu P.**, Durgesh V. Modal Decomposition Techniques: Application in Coherent Structures for a Saccular Aneurysm Model. Fluids. 2022;7(5):165.
- **Yu P.**, Durgesh V. Comparison of Flow Behavior in Saccular Aneurysm Models Using Proper Orthogonal Decomposition. Fluids. 2022;7(4):123.
- **Yu P.**, Durgesh V. Application of Dynamic Mode Decomposition to Study Temporal Flow Behavior in a Saccular Aneurysm. Journal of Biomechanical Engineering. 2022;144(5).
- **Yu P.**, Durgesh V., Xing T., Budwig R. Application of proper orthogonal decomposition to study coherent flow structures in a saccular aneurysm. Journal of Biomechanical Engineering. 2021;143(6).

Conference Publications

- Durgesh V., Padilla R., **Yu P.** Experimental Study: Aerodynamics of a Flexible Membrane in a Uniform Flow. In: AIAA AVIATION 2020 FORUM; 2020. p. 3080.
- **Yu P.**, Durgesh V. Experimental study of large-scale flow structures in an aneurysm. In: Fluids Engineering Division Summer Meeting. vol. 51555. American Society of Mechanical Engineers; 2018. p. V001T02A009.
- Garcia E., **Yu P.**, Durgesh V., Johari H. Experimental study of thin and thick airfoils at low Reynolds numbers. In: 54th AIAA Aerospace Sciences Meeting; 2016. p. 0854.

Conference Presentations

- **Yu P.**, Durgesh V. Modal decomposition application to study large-scale flow structures in an aneurysm. In: APS Division of Fluid Dynamics Meeting Abstracts; 2021. p.E20–003.
- **Yu P.**, Durgesh V. Framework for unsteady flow analysis in a circular cavity using Dynamic Mode Decomposition. In: APS Division of Fluid Dynamics Meeting Abstracts; 2020. p.T07–005.
- **Yu P.**, Durgesh V. Pressure Field Estimation on Flow over a Sidewall Aneurysm. In: APS Division of Fluid Dynamics Meeting Abstracts; 2019. p.Q11–007.
- **Yu P.**, Durgesh V., Johari H. Experimental Study of Flow Behavior in Aneurysm with Varying Bottleneck Factor. In: APS Division of Fluid Dynamics Meeting Abstracts; 2018. p.G18–004.
- **Yu P.**, Durgesh V., Johari H. Impact of Inflow Conditions on Coherent Structures in an Aneurysm. In: APS Division of Fluid Dynamics Meeting Abstracts; 2017. p.D5–003.
- Conlin W., **Yu P.**, Durgesh V. Application of Dynamic Mode Decomposition: Temporal Evolution of Flow Structures in an Aneurysm. In: APS Division of Fluid Dynamics Meeting Abstracts; 2017. p.E3–006.
- **Yu P.**, Choi C., Durgesh V. Experimental Study of Fluid Flow in an Aneurysm for Varying Shape Indices. In: APS Division of Fluid Dynamics Meeting Abstracts; 2014. p.G7–006.

Book Chapters

- Padilla R., **Yu P.**, Swenson M., Durgesh V. Application of 3D printing in the Experimental Aerodynamic Research. Digital Manufacturing in Industry 5.0. Spring Nature Journal (2025).

Research Experience

2021-2024 **Post-Doctoral Researcher**
Department of Soil and Water Systems, University of Idaho
Advisors: Gregory Möller and Vibhav Durgesh
Project: Phosphorus Removal to Oligotrophic Levels Innovating Three High-Flow Water Technologies using Reactive Filtration, Biochar Adsorption, and Nanobubble-Enhanced Biomimetic Separations
Funding amount: $1,000,000

2018-2021 **Graduate Research Assistant**
Department of Mechanical Engineering, University of Idaho
Advisor: Vibhav Durgesh

2016-2018 **Graduate Research Assistant**
Department of Mechanical Engineering,California State University, Northridge
Advisor: Vibhav Durgesh

2013-2016 **Undergraduate Research Assistant**
Department of Mechanical Engineering, California State University, Northridge
Advisor: Vibhav Durgesh

Mentorship Experience

M.S.	Piyush Basnet* (2021-2023, UI), Rodrigo Padilla* (2019-2021, UI)
Ph.D.	Rodrigo Padilla* (2021-2026, UI)
Undergraduate	Savannah Shropshire (2025-Present, UWP)

*Graduated

Teaching

Courses Taught

University of Wisconsin - Platteville

MECHENG 3720 Measurements and Instrumentation Laboratory (Undergraduate) - *Fall '24, Spring '25, Fall '25, Spring '26*

MECHENG 4720 Thermal Systems Laboratory (Undergraduate) - *Spring '26*

University of Idaho

ME 541 Mechanical Engineering Analysis (Graduate) - *Fall '20, Fall '21*

ME 330/L Experimental Methods for Engineers (Undergraduate) - *Fall '19, Spring '20, Fall '20, Spring '21, Spring '23*

California State University, Northridge

ME 335/L Mechanical Measurements (Undergraduate) - *Fall '17, Spring '18*

Advising (Capstone)

University of Wisconsin-Platteville

2026 Oil-Film Interferometry Experimental Setup (3 students)
2026 John Deere Ultrasonic System Detection (4 students)
2026 Tabor Lake Weed Bottom Removal (4 students)
2026 Plexus Tilt Table (4 students)
2025 Presto Air Popper Noise Study (4 students)
2025 Shivvers Smart Level Grain Drying System (4 students)
2025 Spectrum Brands Noise Reduction Study (4 students)

University of Idaho

2023-2024 Prandtl-D Wing Demonstration (6 students)
2023-2024 Oil-Film Interferometry (4 students)‡
2023-2024 UI Fisheries Wastewater Recapture (2 students)
2023-2024 C-Arm Relocation Guidance (6 students)†
2024 Controlled Velocity Projectile Acceleration (4 students)

† Best senior design team in 2024
‡ Best technical presentation in 2024

Service

Club UWP Society of Automotive Engineers (2025-Present), Pioneer Powersports (2026-Present)
Department Outreach committee (2024-Present), Laboratory committee (2024-Present), EXPO committee (2025)
University Improvement and Learning Committee (2025-2027)

Grant Writing Experience

2025-2026 **Curriculum Improvement Grant (Internal at UWP)***
Department of Mechanical and Industrial Engineering
Collaborators : **Paulo Yu**, Jorge Camacho, and Yang Chen
Project: Course Enhancement Grant for Measurements and Instrumentation Laboratory
Funding amount: $1,000

2025 **Laboratory Improvement Grant (Internal at UWP)***
Department of Mechanical and Industrial Engineering
Collaborators : **Paulo Yu** and Jorge Camacho
Project: Acquisition of Programmable Camera for Measurements and Instrumentation Laboratory
Funding amount: $10,000

2026 **Higher Education Initiative***
Wisconsin Space Grant Consortium
PI : **Paulo Yu**
Project: Experimental Aerodynamics: An introductory course for University of Wisconin-Platteville students
Funding amount: $10,000

*Funded

Industry Experience

2015-2016 **Mechanical Engineering Intern**
MeasureTech, Chatsworth, California

Professional Development

2026 KEEN: Leadership Academy at UWP
2025 Council of Undergraduate Research: Proposal Writing Institute
2025 KEEN: Enhancing Inclusive Teaching Practices Through EML
2025 Faculty College: Scholarship of Teaching and Learning
2024 KEEN: Crescendo Workshop at UWP

Professional Membership

Member American Society of Mechanical Engineers (ASME)
Member Tau Beta Pi Engineering Honor Society (TBP)
Member American Physical Society (APS)
Member American Institute of Aeronautics and Astronautics (AIAA)

Accolades

Nominations

The Prince Sultan Bin Abdulaziz International Prize for Water 2026
PSIPW - Category: Alternative Water Resources

Certifications

Professional Engineering License (In Preparation) 2026
Board for Professional Engineers, Land Surveyors, and Geologists

Technical Writing Essentials for Engineers 2023
American Institute of Aeronautics and Astronautics

Engineer-In-Training, California 2014
Board for Professional Engineers, Land Surveyors, and Geologists

Fellowships

ASME Foundation Graduate Teaching Fellowship 2019-2021
American Society of Mechanical Engineers (ASME)

Awards

Outstanding Graduate Student for Scholarly Work 2018
College of Engineering and Computer Science
California State University, Northridge (CSUN)

Graduate Engineering Presenter (2nd Place) 2018
32nd Annual CSU Statewide Competition

Graduate Engineering Presenter (1st Place) 2017
21st Annual Student Research and Creative Works CSUNposium

Scholarships

William J. and Marijane E. Adams Jr. 2013
American Society of Mechanical Engineers (ASME)

The Boeing Company Annual Scholarship 2013
College of Engineering and Computer Science (CSUN)

Skills

Computer	**Design**: SolidWorks (including FEA Package), ANSYS Fluent **Software**: MATLAB (including Simulink), NI LabVIEW, Python, Visual Basic for Applications, Engineering Equation Solver (EES), RStudio **Productivity**: MS Office, LaTeX, TecPlot, Adobe Lightroom **Systems**: Windows (all versions), Macintosh **Remote**: Zoom, MS Teams
Hardware	Particle Image Velocimetry (PIV), Laser Doppler Velocimetry (LDV), Oil-Film Interferometry (OFI), Planar Laser Induced Fluorescence (PLIF), Data acquisition systems, Strain gauges, Linear Variable Displacement Transducer (LVDT), Optics, Basic machining equipment, Laser cutting machine, 3D printing machine, Optical comparators, wind tunnel, water tunnel
Analysis	Proper Orthogonal Decomposition (POD), Dynamic Mode Decomposition (DMD)

Languages

Filipino (Native), English (Fluent), Spanish (Beginner)