SHAZIB Z. VIJLEE

("shaz") (pronunciation) (he/him)

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Portland, OR 97203

Current Positions

Since 7/2024	**Donald P. Shiley School of Engineering, University of Portland** Associate Professor	Portland, OR

Education

2024 — **University of Portland (Oregon)**
Master of Business Administration (in progress, part-time, expected in December 2024)

2014 — **University of Washington at Seattle**
Doctor of Philosophy, Mechanical Engineering
Advisor: Professor John C. Kramlich
Dissertation: *Effects of Fuel Composition on Combustion Stability and NO_X Emissions for Traditional and Alternative Jet Fuels*

2006 — **University of Texas at Austin**
Master of Science, Mechanical Engineering
Advisor: Professor David G. Bogard
Thesis: *Optimizing a System of Gas Turbine Engines and Generators for Marine Power Generation*

2004 — **University of Texas at Austin**
Bachelor of Science, Mechanical Engineering with High Honors

Previous Positions

7/2020 to 6/2024	**Donald P. Shiley School of Engineering, University of Portland** Associate Dean for Academics, Graduate Program Director, and Associate Professor	Portland, OR
11/2014 to 02/2023	**Department of Mechanical Engineering, University of Washington** Affiliate Professor	Remote
8/2014 to 6/2020	**Donald P. Shiley School of Engineering, University of Portland** Assistant Professor	Portland, OR
1/2010 to 7/2014	**Energy and Environmental Combustion Lab, University of Washington** Graduate Research Assistant	Seattle, WA
1/2010 to 7/2014	**Department of Mechanical Engineering, University of Washington** Graduate Teaching Assistant	Seattle, WA
Summers 2010 & 2011	**Propulsion Directorate, Air Force Research Laboratory** Visiting Scientist/Research Fellow	Dayton, OH
1/2009 to 9/2009	**Design for Environment Lab, University of Washington** Graduate Research Assistant	Seattle, WA
8/2006 to 1/2009	**Phantom Works, Boeing Company** Engineer	Seattle, WA
1/2005 to 6/2006	**Center for Electromechanics, University of Texas** Graduate Research Assistant	Austin, TX
Fall 2004	**Department of Mechanical Engineering, University of Texas** Graduate Teaching Assistant	Austin, TX
Summer 2004	**Engineering Sciences Center, Sandia National Labs** Engineer	Albuquerque, NM

Experience

Projects & Funded/Unfunded Proposals (Abbreviated)

2019	**UP Engineering and UP English** (Co-Principal Investigator) Improving Writing Instruction, Practice, and Feedback in Introduction to Engineering Granted: $5,000 proposal-based (Provost's Office)
2018	**UP Engineering and U Wyoming Engineering** Experiments with Collaborator at the University of Wyoming Granted: $4,260 proposal-based (Donald P. Shiley School of Engineering)
2017	**UP Engineering, UP Nursing, and UP Academic Technology Services and Innovation** (Participant) Untethered Lecture Capture Gifted: $1,060 of classroom technology (Provost's Office)
2017	**UP Engineering, UP Education, and UP STEM Center** (Co-Principal Investigator) Robotics Education for Elementary-aged Students Unfunded: $640,000 (NSF Innovative Technology Experiences for Students and Teachers)
2016	**UP Engineering** (Principal Investigator) Analysis of Charcoal Samples for Composition and Energy Content Granted: $1,809 proposal-based (Arthur Butine Award for Faculty Development)
2016	**UP Engineering** (Principal Investigator) Pre-Engineering Program for High School Seniors Gifted: $8,000 (Private Donor)
2016	**UP Engineering & U Wyoming Engineering** (Co-Principal Investigator with Dr. Belmont of UWyo) Advancement of Renewable Crops for Energy in Developing Countries Unfunded: undisclosed amount (NSF Partnerships for International Research and Education program)
2014	**UP Engineering** (Co-Principal Investigator with Drs. Dillon and Murty) Acquisition of Fluid Dynamic Flow Visualization System Unfunded: $200,000 proposal-based (NSF Major Research Instrumentation)
2014	**UP Engineering** (Principal Investigator) Laminar, Premixed Flat Flame Burner Granted: $5,000 proposal-based (Arthur Butine Award for Faculty Development)
2012	**UW Engineering** (Graduate Student Assistant) Analysis of the UWME curriculum to work towards increased enrollment and improved experience Granted: <$10,000 unsolicited (UW Department of Mechanical Engineering)
2011	**UW Combustion & Air Force Research Laboratories** (Research Fellow) Development of experiments to study emissions from jet fuel surrogates Granted: <$20,000 proposal-based fellowship (US Department of Defense)
2008	**Boeing Phantom Works** (Principal Investigator) The initial analysis and conceptual considerations of alternate concepts for the aircraft auxiliary power unit. Granted: <$20,000 proposal-based (Boeing Company)

Teaching Experience

Notes: number of sections in parentheses, * indicates University Core course, + indicates original course development, ^ indicates significant course transformation

University of Portland (as Assistant or Associate Professor)

Anchor Seminar (2)*
Introduction to Engineering (12)^
Fundamental Thermodynamics (4)
Applied Thermodynamics (7)
Thermal Systems Lab (17)^
Combustion (4)+
Engineering Economics (4)^
Engineering Capstone I/II (3)^

University of Washington (as Teaching Assistant or Instructor)

Fundamental Thermodynamics (1)
Energy Conversion (2)
Kinematics & Dynamics (1)
Heat Transfer (2)

University of Texas (as Teaching Assistant)

Fundamental Thermodynamics (1)

Students Mentored

	Undergraduate Apprentices	High School Apprentices	Graduate Researchers
2022	Katt Gamblin [UP]		
2018			Alexandra Howell [UWY]

2017	Alex Junge [UP] Weslyn Nishimura [UP]		Ahmed Balogun [UWY] Anamol Pundle [UWA]
2016	Dylan Jones [UP] Isabel Kalnin [UP]		
2015	Kara Kindt [UP] Amanda Thompson [UP]	Joshua Bamberger [BHS] Alfredo Reyes [MHS]	
2013	Garrett Allawatt [UWA] Devin Chandler [UWA]		Himanshu Kapoor [UWA]
2012	Austin Montgomery [UWA]		Calin Schell [UWA]
2009	Eri Amasawa [UWA]		

Notes: UP = University of Portland; BHS = Beaverton High School; UWA = University of Washington; MHS = Madison High School; UWY = University of Wyoming

Capstone Teams Mentored

2023 – 2024 | University of Portland | Hyster Yale – Electric Tilt Control System
Students: Carson Akai, Vanyel Sinlao, and Brent Torres

2019 – 2020 | University of Portland | Nossa Familia Coffee – Giant French Press
Students: Dillon Kodama, Jeremy Quilizapa, Payson Wilde, and Maximilian Reithmayer

2019 – 2020 | University of Portland | Combustion Testing Device
Students: Wesley Chambers, Kenra Deangelis, Keegan McCrary, and Morgan Nelson

2018 – 2019 | University of Portland | Biotronik – Reservoir Temp
Students: Julia Heseltine, Dana Lawson-Rivera, James Martin, and Steven Johnson

2018 – 2019 | University of Portland | Burn Design Labs – Shea Roaster
Students: Haley Meisburger, Spencer Marcinko, and Michael Roberts

2017 – 2018 | University of Portland | Briquette Press
Students: Connor Cronin, Tyler Cuff, Sage Guttes, Matt Linhart, and Collin Pierce

2017 – 2018 | University of Portland | Biomass Kiln
Students: Chad Kon, Alek Fredricksen, Nick Edwards, and Weslyn Nishimura

2016 – 2017 | University of Portland | BioKiln
Students: Ben Bui, Brandon Chan, Patrick Lum, and Callie Quezada

2016 – 2017 | University of Portland | Torrefaction of Biomass
Students: Chris Cardoza, Katie Cummins, Rudi Hamsa, Kevin Hanscam, Tim Miles, and Paul Munn

2015 – 2016 | University of Portland | Bonzeb – Kiln
Students: Emma Just, Kara Kindt, Lindsey Roth, and Coleman Salter

2014 – 2015 | University of Portland | Optical Engine
Students: Calvin Collander, Hunter Cantrell, and Joe Griffin

Spring 2012 | University of Washington | Conduction Heat Transfer Labs
Students: Alan Guthrie, Michael Hartley, Alex Moon, and Krista Simonson

Spring 2012 | University of Washington | Radiation Heat Transfer Labs
Students: Clyde Downing, Nick Gacek, Alex Gramling, and Vasili Ialanji

Fall 2011 | University of Washington | Radiation Heat Transfer Labs
Students: Jemma Gaber, Griffen Latimer, and James VanDeusen

Achievements

Awards & Funded Grants

2023
UP Shiley Grants for Faculty Research and Development
UP Arthur Butine Award for Faculty Development
President's Team Award (as member of Title IX Team)

2021
UP Shiley Grants Award for Faculty Development (with Dr. Jordan Farina)
UP Shiley Grants Award for Faculty Development (with Ms. Jamie Merritt)

2019	UP Ignite Grants for Faculty Innovation in Teaching and Learning (with Dr. Molly Hiro)
2018	UP Shiley Grants Award for Faculty Development
2017	UP Athletics Difference Award
2016	UP Arthur Butine Award for Faculty Development
2014	UP Arthur Butine Award for Faculty Development UW Department of Mechanical Engineering Endowed Students First Fellowship UW Department of Mechanical Engineering Graduate Student Commencement Speaker
2012	UW College of Engineering Dean's Fellowship
2011	US Air Force Research Fellowship UW Mechanical Engineering Teaching Assistant of the Year Nominee
2010	UW Mechanical Engineering Teaching Assistant of the Year Nominee
2004	UT College of Engineering Graduate Fellowship UT Honors Day College Scholar
2003	Steve K. Sin Endowed Presidential Scholarship University Honors UT Honors Day Scholar
2002	Edward Morgan and Rebecca Brown Case Endowed Presidential Scholarship University Honors UT Honors Day Scholar
2001	University Honors
2000	Texas Society of Professional Engineers Scholarship University Honors

Societies
American Society of Engineering Education – ASEE (since 2008)
American Society of Mechanical Engineers – ASME (since 2008)
Combustion Institute – CI (2014-2023)
Association for Science Teacher Education – ASTE (2018-2019)
American Chemical Society – ACS (2014 - 2017)
Tau Beta Pi (Engineering Honor Society) – Texas Alpha (since 2002)
Pi Tau Sigma (Mechanical Engineering Honor Society) – Texas Kappa (since 2002)
Sigma Gamma Tau (Aerospace Engineering Honor Society) – Texas Alpha (since 2001)

Professional Development
Faith & Intellectual Life Discussion Group – since 2022 (Portland, Oregon)
ABET Fundamentals of Program Assessment Workshop – 2022 (Online)
Exploring Anti-Racism & Social Justice in Engineering Curricula by University of San Diego – 2020 (Online)
Search Advocacy Training by Oregon State University– 2020 (Online)
Rapid Learning Cycles – 2019 (Portland, Oregon)
Kern Entrepreneurial Engineering Network (KEEN): Innovating Curriculum with Entrepreneurial Mindset – 2018 (Tampa, Florida)
Culturally Relevant Teaching for College STEM Faculty: An Interactive Workshop – 2017 (Portland, Oregon)
American Society for Engineering Education: National Effective Teaching Institute 1A – 2015 (Austin, Texas)

Credentials
Resident Status**:** United States Citizen
Security Clearance**:** United States Department of Energy Level L (expired)
Certification**:** Engineer In Training (EIT) – Texas

Service
University of Portland
University Level
2024-Pres. Committee: Student Success Committee
2023-2024 Committee: Curriculum and Academic Regulations
2023-2024 Task Force: Academic Strategic Planning
2023 only Search Committee: CAS Associate Dean (Search Advocate)
2023 only Search Committee: Provost
2022-Pres. Anchor Seminar Teaching & Development Team
2022 only Faculty Development Day: Co-Organizer (Theme: *Beyond the Bluff: Preparing Students to Thrive After UP*)

2020-Pres. Search Advocate
2020-2024 Committee: Academic Standing
2022 only Search Committee: Director of Teaching and Learning
2021-2022 Task Force: Center for Teaching and Learning
2021-2022 Search Committee: College of Arts & Sciences Dean
2021-2022 Search Committee: Associate Director of Peer-Assisted Learning
2021-2022 Search Committee: Deans Administrative Assistant
2021-2022 Task Force: Faculty Development Day Planning
2020-2021 Search Committee: Mechanical Engineering Tenure Track Faculty
2020-2021 Committee: Data Governance
2020-2021 Committee: Collaborative for International Studies & Global Outreach
2018-2020 Committee: Core Curriculum Revitalization
2018-2020 Committee: Shiley Marcos Center for Design and Innovation
2018 only Presenter: New Faculty Orientation
2016-2020 Committee: Orientation Planning
2016-2020 Committee: STEM Education and Outreach Center Executive Committee
2016-2019 Committee: President's Advisory Committee on Sustainability
2016-2018 Ambassador: Academic Technology Services and Innovation
2017-2018 Mentor: New Faculty (Dr. Christy Ivler)
2016 only Committee: President's Strategic Planning Committee on Undergraduate Education
2015 only Presenter: New Faculty Orientation

School Level
2022-? Academic Council of the Engineering School (ACES)
2020-? Dean's Leadership Council (DLC)
2019-2020 Committee: Engineering Computing
2017-2018 Committee: Senior Capstone Coordination
Fall 2016 Committee: EGR 110/111 Committee
Since 2015 Faculty Advisor: Mechanical Engineering Student Association

University of Washington
2013 - 2014 Engage - The Science Speaker Series and Seminar, Co-Advisor
2011 UW College of Engineering Council on Education Policy, Graduate Student Representative
2010 - 2014 UW College of Engineering Discovery Days Demonstrator
2010 - 2012 UW Mechanical Engineering Student Seminar Series, Founding Co-Organizer

University of Texas
2004 UT Mechanical Engineering External Advisory Committee Student Panel
2003 Tau Beta Pi (Texas Alpha), Candidate Secretary and Service Chair
2003 Pi Tau Sigma (Texas Kappa), Student Engineering Council Representative

Community
2023 - 2024 Ambassador Board of De La Salle North Catholic High School
2012 Ballard High School Biotech Academy Project Mentor
2006 - 2009 Habitat for Humanity of Seattle/South King County
2006 Boeing Company Math and Science Afterschool Program

Publications
Note: student authors identified with an asterisk (*)

Conference Proceedings and Journal Articles (receiving Full Publication Peer-Review)
1. SZ Vijlee, "A Multi-Disciplinary First-Year Design Project with Systems Integration, Standard Requirements, Creativity, and Impact," *Proceedings of the ASEE 15th Annual First-Year Engineering Experience Conference*, Boston, MA: ASEE, 2024. (DOI)

2. SZ Vijlee and MH Hiro, "Improving Writing Instruction, Practice, and Feedback in an Introduction to Engineering Course," *Proceedings of the ASEE Annual Conference and Exposition*, Baltimore, MD: ASEE, 2023. (DOI)

3. S Abbasi, JM Wolfand, and SZ Vijlee, "Constructive Controversy: Optimizing Decision Making in Engineering Design Teams," *Proceedings of the ASEE Annual Conference and Exposition*, Minneapolis, MN: ASEE, 2022. (DOI)

4. JR Merritt and SZ Vijlee, "A University-High School Partnership for Introduction to Engineering: Building Community with Underrepresented Students," *Proceedings of the ASEE Annual Conference and Exposition*, Virtual: ASEE, 2021. (DOI)

5. AN Howell*, KW Stahlfeld*, AB Mohammed*, SZ Vijlee, and EL Belmont, "Gas Independence of Miscanthus x giganteus Torrefied in Nitrogen (N2) and Carbon Dioxide (CO2) using Calibrated Thermogravimetric Analysis," *Bioresource Technology Reports*, Volume 7, Article 100238: Elsevier, 2019. (DOI)

6. AB Mohammed*, SZ Vijlee, and EL Belmont, "Technoeconomic Feasibility of a Sustainable Charcoal Industry to Reduce Deforestation in Haiti," *Sustainable Energy Technologies and Assessments, Volume 29, pages 131-138*: Elsevier, 2018. (DOI)

7. AH Chime*, AV Kalia*, SZ Vijlee, IV Novosselov, JC Kramlich, and PC Malte, "Alternative Aviation Fuels Evaluated for Lean-Flame NO_X and Blowout and Rich-Flame Soot Threshold (GT2018-75564)," *Proceedings of the ASME Turbo Expo*, Oslo, Norway: ASME, 2018. (DOI)

8. KB Fackler, MF Karalus, IV Novosselov, JC Kramlich, PC Malte, and SZ Vijlee, "NO_X Behavior of Lean-Premixed Combustion of Alternative Gaseous Fuels," *Journal of Engineering for Gas Turbines and Power, Volume 138, Issue 4*: ASME, 2016. (DOI)

9. KE Lulay, HE Dillon, TA Doughty, KH Khan, DS Munro, VD Murty, and SZ Vijlee, "Implementation of a Design Spine for a Mechanical Engineering Curriculum (11406)," *Proceedings of the ASEE Annual Conference and Exposition*, Seattle, WA, USA: ASEE, 2015. (DOI)

10. SZ Vijlee, IV Novosselov, and JC Kramlich, "Effects of Composition on the Flame Stabilization of Alternative Aviation Fuels in a Toroidal Well Stirred Reactor (GT2015-43014)," *Proceedings of the ASME Turbo Expo*, Montreal, Quebec, Canada: ASME, 2015. (DOI)

11. SZ Vijlee, JC Kramlich, AM Mescher, SD Stouffer, and AO Abels, "Characterizing Combustion of Synthetic and Conventional Fuels in a Toroidal Well Stirred Reactor (GT2013-94944)," *Proceedings of the ASME Turbo Expo*, San Antonio, TX, USA: ASME, 2013. (DOI)

Conference Papers (receiving Abstract/Proposal Peer-Review)

1. AN Howell*, EL Belmont, and SZ Vijlee, "Torrefaction Time and Environment Dependence of Miscanthus Elephant Grass Properties," Proceedings of the Western States Combustion Meeting, Bend, OR: Combustion Institute, 2018.

2. SZ Vijlee, JC Hermanson, JC Kramlich, and PC Malte, "Effects of Fuel Composition on NO_X Emissions for Traditional and Alternative Jet Fuels," *Proceedings of the Western States Combustion Meeting*, Seattle, WA: Combustion Institute, 2016.

3. DL Blunck, JP Cain, RC Streibich, SZ Vijlee, SD Stouffer, and WM Roquemore, "Fuel Rich Combustion Products from a Well-Stirred Reactor Operated using Traditional and Alternative Fuels," *Proceedings of the Central States Combustion Meeting*, Dayton, OH: Combustion Institute, 2012.

4. SZ Vijlee, A Ouroua, LN Domaschk, and JH Beno, "Directly-Coupled Gas Turbine Permanent Magnet Generator Sets for Prime Power Generation On Board Electric Ships," *2007 IEEE Electric Ship Technologies Symposium*, Arlington, VA, USA: IEEE, 2007, pp. 340-347.

Institution Reports/White Papers

1. S. Vijlee, *Effects of Fuel Composition on Combustion Stability and NO_X Emissions for Traditional and Alternative Jet Fuels*, PhD Dissertation, University of Washington, 2014.

2. S. Vijlee, *Optimizing a System of Gas Turbine Engines and Generators for Marine Power Generation*, Master's Thesis, University of Texas at Austin, 2006.

3. S. Vijlee, "An Automated Procedure for Analyzing the Effects of Vortex-Induced Fin Pressure on Roll Torque for a Finned Body of Revolution (SAND2004-4378)," Albuquerque, NM, USA: United States Dept. of Energy, 2004.

Presentations, Conferences, Symposia, Workshops, and Panels

Conferences/Symposia/Workshops

2023 ASEE National Conference (Baltimore, MD)
Presentation: Improving Writing Instruction, Practice, and Feedback in an Introduction to Engineering Course

2022 AAC&U Curriculum-to-Career Innovations Institute (Virtual)

2021 ASEE National Conference (Virtual)
Presentation: A University-High School Partnership for Introduction to Engineering: Building Community with Underrepresented Students

First Year Engineering Experience (FYEE) Conference (Virtual)

2018 NSF Engineering for Us All (E4USA) Curriculum Workshop (College Park, MD)

ASME Turbo Expo (Oslo, Norway)
Presentation: Alternative Aviation Fuels Evaluated for Lean-Flame NO_X and Blowout and Rich-Flame Soot Threshold (GT2018-75564)

Western States Section of the Combustion Institute Spring Meeting (Bend, OR)
Presentation: Torrefaction Time and Environment Dependence of Miscanthus Elephant Grass Properties (presented by AN Howell and EL Belmont from the University of Wyoming)

KEEN: Innovating Curriculum with Entrepreneurial Mindset Workshop (Tampa, Florida)

2017 Western States Section of the Combustion Institute Fall Meeting (Laramie, WY)

2016 Western States Section of the Combustion Institute Spring Meeting (Seattle, WA)
Presentation: Effects of Fuel Composition on NOX Emissions for Traditional and Alternative Jet Fuels

2015 ASME Turbo Expo (Montreal, Canada)
Presentation: Effects of Composition on the Flame Stabilization of Alternative Aviation Fuels in a Toroidal Well Stirred Reactor (GT2015-43014)
Presentation: NO_X Behavior for Lean-Premixed Combustion of Alternative Gaseous Fuels (GT2015-42069)

UP Faculty Research Day (Portland, OR)
Session Chair: Butine Award Winners

Presentation: Laminar, Premixed Flat Flame Burner

ASEE National Effective Teaching Institute 1A (Austin, TX)

2013 ASME Turbo Expo (San Antonio, TX)
Presentation: Characterizing Combustion of Synthetic and Conventional Fuels in a Toroidal Well Stirred Reactor (GT2013-94944)

2008 ASME International Conference on Energy Sustainability (Jacksonville, FL)

Boeing Company Fuel Cell Workshop (Everett, WA)
Presentation: Environmentally Sustainable System Design Guidelines

2006 SAE Power Systems Conference (New Orleans, LA)

2005 US Office of Naval Research Electric Ship Research Consortium (Tallahassee, FL)
Presentation: Gas Turbine-Generator Set Optimization

Invited Speeches/Presentations

2016 Academic Affairs Committee of the University of Portland Board of Regents (Portland, OR)
Academics Engage the Community and World

2016 52nd Annual Engineers Week High School Dinner (Portland, OR)
Introductory Remarks

2014 UW Mechanical Engineering Graduation Ceremony (Seattle, WA)
Graduate Student Commencement Speaker

UW Mechanical Engineering 10th Annual Scholarship & Fellowship Luncheon (Seattle, WA)
Honored Graduate Student Speaker

2013 UW Science Now/Engage Speaker Series at Seattle Town Hall (Seattle, WA)
Presentation: Burning Alternative Fuels

2005 UT Mechanical Engineering Thermal/Fluid Systems Seminar (Austin, TX)
Presentation: Optimizing a System of Gas Turbine Engine-Generator Sets

Posters

2017 25th European Biomass Conference and Exposition (Stockholm, Sweden)
Poster: Techno-Economic Feasibility of Miscanthus x gigantus (Elephant Grass) Substitution for Charcoal in Haiti using Monte Carlo Simulation in Net Present Value Analysis (presented by AB Mohammed and EL Belmont from the University of Wyoming)

Panels and Miscellaneous Activities

2023 Podcast: SSOE's Blueprint for Equity

2022 University of Portland Pilgrimage to Le Mans, France (the birthplace of the Holy Cross)

2018 Expert Independent Reference for US Permanent Residency
Mohammadhadi Hajilou, PhD Candidate from the University of Wyoming

2018 Panel Invitation (Portland, Oregon)
Oregon Public Broadcasting (OPB) - Science, Technology, and Discovery in the Northwest