

## Current Positions

Since 7/2020	<b>Donald P. Shiley School of Engineering, University of Portland</b> Associate Dean Associate Professor of Mechanical Engineering	Portland, OR
Since 11/2014	<b>Department of Mechanical Engineering, University of Washington</b> Affiliate Professor	Seattle, WA

## Education

2014	<b>University of Washington at Seattle</b> Doctor of Philosophy, Mechanical Engineering Advisor: Professor John C. Kramlich Dissertation: <i>Effects of Fuel Composition on Combustion Stability and NO<sub>x</sub> Emissions for Traditional and Alternative Jet Fuels</i>
2006	<b>University of Texas at Austin</b> Master of Science, Mechanical Engineering Advisor: Professor David G. Bogard Thesis: <i>Optimizing a System of Gas Turbine Engines and Generators for Marine Power Generation</i>
2004	<b>University of Texas at Austin</b> Bachelor of Science, Mechanical Engineering with High Honors

## Previous Positions

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

## Experience

### Proposals, Grants, and Projects (Abbreviated)

2019	<b>UP Engineering and UP English</b> (Co-Principal Investigator) Improving Writing Instruction, Practice, and Feedback in Introduction to Engineering Granted: \$5,000 proposal-based (Provost's Office)
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2018	<b>UP Engineering and U Wyoming Engineering</b> Experiments with Collaborator at the University of Wyoming Granted: \$4,260 proposal-based (Donald P. Shiley School of Engineering)
2017	<b>UP Engineering, UP Nursing, and UP Academic Technology Services and Innovation</b> (Participant) Untethered Lecture Capture Gifted: \$1,060 of classroom technology (Provost's Office)
2017	<b>UP Engineering, UP Education, and UP STEM Center</b> (Co-Principal Investigator) Robotics Education for Elementary-aged Students Unfunded: \$640,000 (NSF Innovative Technology Experiences for Students and Teachers)
2016	<b>UP Engineering</b> (Principal Investigator) Analysis of Charcoal Samples for Composition and Energy Content Granted: \$1,809 proposal-based (Arthur Butine Award for Faculty Development)
2016	<b>UP Engineering</b> (Principal Investigator) Pre-Engineering Program for High School Seniors Gifted: \$8,000 (Private Donor)
2016	<b>UP Engineering &amp; U Wyoming Engineering</b> (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	<b>UP Engineering</b> (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	<b>UP Engineering</b> (Principal Investigator) Laminar, Premixed Flat Flame Burner Granted: \$5,000 proposal-based (Arthur Butine Award for Faculty Development)
2012	<b>UW Engineering</b> (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	<b>UW Combustion &amp; Air Force Research Laboratories</b> (Research Fellow) Development of experiments to study emissions from jet fuel surrogates Granted: <\$20,000 proposal-based fellowship (US Department of Defense)
2008	<b>Boeing Phantom Works</b> (Principal Investigator) The initial analysis and conceptual considerations of alternate concepts for the aircraft auxiliary power unit. Granted: <\$20,000 proposal-based (Boeing Company)

## Courses Taught

Notes: number of sections in parentheses

<b>University of Portland</b> (as Professor)	<b>University of Washington</b> (as Teaching Assistant or Instructor)	<b>University of Texas</b> (as Teaching Assistant)
Introduction to Engineering (10)	Fundamental Thermodynamics (1)	Fundamental Thermodynamics (1)
Fundamental Thermodynamics (4)	Energy Conversion (2)	
Applied Thermodynamics (7)	Kinematics & Dynamics (1)	
Thermal Systems Lab (13)	Heat Transfer (2)	
Combustion (4)		
Engineering Economics (2)		
Engineering Capstone I/II (3)		

## Students Mentored

	<b>Undergraduate Apprentices</b>	<b>High School Apprentices</b>	<b>Graduate Researchers</b>
2018			Alexandra Howell <sup>UWY</sup>
2017	Alex Junge <sup>UP</sup> Weslyn Nishimura <sup>UP</sup>		Ahmed Balogun <sup>UWY</sup> Anamol Pundle <sup>UWA</sup>
2016	Dylan Jones <sup>UP</sup> Isabel Kalnin <sup>UP</sup>		
2015	Kara Kindt <sup>UP</sup> Amanda Thompson <sup>UP</sup>	Joshua Bamberger <sup>BHS</sup> Alfredo Reyes <sup>MHS</sup>	
2013	Garrett Allawatt <sup>UWA</sup> Devin Chandler <sup>UWA</sup>		Himanshu Kapoor <sup>UWA</sup>

2012	Austin Montgomery <sup>UWA</sup>		Calin Schell <sup>UWA</sup>
2009	Eri Amasawa <sup>UWA</sup>		

Notes:

UP = University of Portland  
BHS = Beaverton High School

UWA = University of Washington  
MHS = Madison High School

UWY = University of Wyoming

## Capstone Teams Mentored

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 Guttus, 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

- 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

Association for Science Teacher Education – ASTE (2018-2019)  
 Combustion Institute – CI (since 2014)  
 American Chemical Society – ACS (2014 – 2017)  
 American Society of Engineering Education – ASEE (since 2008)  
 American Society of Mechanical Engineers – ASME (since 2008)  
 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

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

- Since 2020 Committee: Data Governance
- Since 2020 Committee: Collaborative for International Studies & Global Outreach
- 2018-2020 Committee: Core Curriculum Revitalization
- 2018-2020 Committee: Shiley Marcos Center for Design and Innovation
- 2018 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 Committee: President's Strategic Planning Committee on Undergraduate Education
- 2015 Presenter: New Faculty Orientation

#### School Level

- 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

## Community

- 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 (Full Publication Peer-Review)

1. AN Howell\*, KW Stahlfeld\*, AB Mohammed\*, SZ Vijlee, and EL Belmont, "Gas Independence of Miscanthus x giganteus Torrefied in Nitrogen (N<sub>2</sub>) and Carbon Dioxide (CO<sub>2</sub>) using Calibrated Thermogravimetric Analysis," *Bioresource Technology Reports*, Volume 7, Article 100238: Elsevier, 2019.
2. 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.
3. AH Chime\*, AV Kalia\*, SZ Vijlee, IV Novosselov, JC Kramlich, and PC Malte, "Alternative Aviation Fuels Evaluated for Lean-Flame NO<sub>x</sub> and Blowout and Rich-Flame Soot Threshold (GT2018-75564)," *Proceedings of the ASME Turbo Expo*, Oslo, Norway: ASME, 2018.
4. KB Fackler, MF Karalus, IV Novosselov, JC Kramlich, PC Malte, and SZ Vijlee, "NO<sub>x</sub> Behavior of Lean-Premixed Combustion of Alternative Gaseous Fuels," *Journal of Engineering for Gas Turbines and Power*, Volume 138, Issue 4: ASME, 2016.
5. 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.
6. 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.
7. 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.

### Conference Papers (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<sub>x</sub> 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<sub>x</sub> 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

- 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<sub>x</sub> 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<sub>x</sub> 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 10<sup>th</sup> 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 25<sup>th</sup> European Biomass Conference and Exposition (Stockholm, Sweden)  
Poster: Techno-Economic Feasibility of Miscanthus x giganteus (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

- 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