



87th Annual Pacific Northwest Section
ASEE Conference
"Making Waves in Engineering Education"
March 20-22, 2019
Oregon State University



Lodging: Hilton Garden Inn Corvallis 2500 SW Western Boulevard Corvallis, OR 97333	Hotel Reservation Link: ASEEPNW or call 541.752.5000 Group Code: ASEE	Conference Registration: ASEE PNW Conference Registration
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Conference Committee		
Eric Davishahl (Whatcom CC) David Hurwitz (Oregon State University) Rich Bankhead (Highline College)	Sean St. Clair (Oregon Institute of Tech.) Brock LaMeres (Montana State University) Shiny Abraham (Seattle University)	Krishna Pakala (Boise State University) Matthew Kuhn (University of Portland) Kevin Chang (University of Idaho)


Conference Schedule

Wednesday, March 20, 2019		
Kelley Engineering Center, 2500 NW Monroe Ave.		
5:00 PM 7:30-9:30 PM	Registration Reception (Drinks and Heavy Appetizers)	

Thursday, March 21, 2019		
La Sells Conference Center - Guistina Gallery		
7:30 AM 8:00 AM 8:10 AM 8:20 AM 8:30 AM	Registration Breakfast Welcome from <i>Eric Davishahl, Chair, ASEE PNW Section</i> Welcome from <i>Dr. Scott Ashford, Dean, College of Engineering, Oregon State University</i> Keynote Presentation: "Epistemology in Engineering Education and Practice", <i>Dr. Devlin Montfort, Oregon State University</i>	
A brief argument for the importance of considering epistemology in our community as it relates to student success and understanding engineering practice, followed by some examples and small group discussion.		Devlin has a PhD, Masters and BS in civil engineering from Washington State University, and is now an assistant professor in the School of Chemical, Biological and Environmental Engineering at Oregon State University. He conducts qualitative research in the interpretivist paradigm, broadly investigating the links between experience, cognition and identity in engineering education and practice. He teaches in CBEE's undergrad program with an emphasis on conceptual understanding in process engineering.
9:15 AM - 10:00 AM	ASEE PNW Section Business Meeting (all attendees invited)	

Thursday, March 21, 2019		
10:15 AM – 11:15 AM		
Session 1A (Agriculture Leaders Room)	Session 1B (Agriculture Production Room)	Session 1C (Agriculture Science Room)
Educational Technology and Spatial Skills Moderator: Branimir Pejcinovic	Homework and Assessment Moderator: Andrea Haverkamp	Professional Practice Moderator: Gabriel Potvin
Utilizing AR Sandboxes for Civil and Construction Engineering Education <i>Joseph Louis</i> <i>Oregon State University</i>	Enhancing Student Success Using Flexible Assessment <i>Bryan Mealy</i> <i>Cal Poly State University</i>	Critical Balance Point: Considerations for Integration of Communication and Professional Skills into the Undergraduate Engineering Curriculum <i>Rachael Cate</i> <i>Oregon State University</i>
Students are improving their spatial skills in introductory engineering class through projects utilizing 3D printers and laser cutters <i>Patrick Burnett, Eric Davishahl</i> <i>Whatcom Community College</i>	WeBWork Online Homework in Material and Energy Balances <i>Jonathan Verrett</i> <i>University of British Columbia</i>	Destigmatizing Confusion: Sense-Making in Professional Practice <i>Ed Michor,</i> <i>Milo Koretsky</i> <i>Oregon State University</i> <i>Susan Nolen</i> <i>University of Washington</i>
Review of Educational technology: closing the gap between modern technology and the college engineering classroom <i>David Pinkerton, Krishna Pakala</i> <i>Boise State University</i>	Homework Assignment Submission: Gauging Student Responsiveness and Behavior <i>Kevin Chang</i> <i>University of Idaho</i>	The Things You Need but Weren't Taught – an Engineering Professional Practice Course <i>Melinda Holtzman, James McNames</i> <i>Portland State University</i>
Tablet vs. smartphone use for freehand sketching and spatial visualization in large engineering graphics courses <i>Lelli Van Den Einde</i> <i>University of California, San Diego</i> <i>Elizabeth Cowan</i> <i>Spatial Vis & Spatial Kids</i>	An Institution-Wide Student Outcome for Engineering: Development, Implementation and Assessment <i>Michael Anderson, Traci Sarmiento, Cory Cooper, Donald Rhymer</i> <i>United State Air Force Academy</i>	Productive interactions in engineering practice: A comparison between student and expert teams using network analysis <i>Kritsa Chindanon, Milo Koretsky</i> <i>Oregon State University</i>

Thursday March 21, 2019		
11:30 AM – 12:30 PM		
Session 2A (Agriculture Leaders Room)	Session 2B (Agriculture Production Room)	Session 2C (Agriculture Science Room)
Pedagogy and Hands-on Learning Moderator: Lelli Van Den Einde	Academic Skills and Sense of Belonging Moderator: Jonathan Verret	Lab Experiences and Undergraduate Research in EE Moderator: Joseph Lewis
Problem-Based Lab Education: Redesign of a Senior Year Chemical Engineering Lab Course to Promote Autonomy, Critical Thinking, and Problem-Solving Skills <i>Gabriel Potvin</i> <i>University of British Columbia</i>	Metacognition: are graduate students different from freshmen? <i>Branimar Pejcinovic, Donald Duncan, Melinda Holtzman</i> <i>Portland State University</i>	Cost and Benefits of Volt-Var Optimization on Electric Power Distribution Systems: An Undergraduate Research Experience <i>Xichen Jiang</i> <i>Western Washington University</i>
The effect of deductive and inductive teaching methods in an introductory programming course <i>Jen Symons, Heather Dillon, Joseph Hoffbeck</i> <i>University of Portland</i>	Storytelling in Thermodynamics: ABET, retention, and self-identification <i>Eric Jankowski, Sara Hagenah</i> <i>Boise State University</i>	Development of Laboratory Assignments for Teaching Communication Systems <i>Aaron Scher and Eve Klopff</i> <i>Oregon Institute of Technology</i>
Targeting Representational Competence and Spatial Skills Development with Hands-on Models in Calculus and Statics <i>Eric Davishahl, Lee Singleton</i> <i>Whatcom Community College</i> <i>Todd Haskell</i> <i>Western Washington University</i>	Explorations of reflection as a tool for writing knowledge transfer and writing skill appreciation <i>Natasha Mallette</i> <i>Oregon State University</i> <i>Jennifer Mallette</i> <i>Boise State University</i>	Implementation of a Lab Section for Electricity and Magnetism with Transmission Lines <i>Eve Klopff, Aaron Scher</i> <i>Oregon Institute of Technology</i>
Invention Bootcamp: Teaching Design, Prototyping and Invention to High School Students <i>Gerald Recktenwald</i> <i>Portland State University</i>	Review of Living Learning Communities and their impact on first year engineering college students <i>Samantha Schauer, Krishna Pakala, Kim Tucker</i> <i>Boise State University</i>	Electric Power Distribution System Reliability and Outage Costs: An Undergraduate Industry Collaboration <i>Xichen Jiang</i> <i>Western Washington University</i>

Thursday March 21, 2019		
12:30 PM – 2:15 PM		
Guistina Gallery		
12:30 PM 12:45 PM 1:15 PM - 2:00 PM	Lunch ASEE PNW Awards Keynote Presentation: "Transforming Engineering Education by Leveraging Technology and Building Community" <i>Dr. Krishna Pakala</i> <i>State University</i> <i>PNW Outstanding Teaching Award Winner</i>	<i>Boise</i> <i>2017 ASEE</i>
In his presentation, Dr. Pakala will articulate how he has utilized emerging technologies and creative practices to build an extensive framework of instructional resources for student support in and outside the classroom.		Dr. Krishna Pakala is a Clinical Associate Professor in the Mechanical and Biomedical Engineering Department at Boise State University, Boise, Idaho. He received his Bachelors at Jawaharlal Nehru Technological University, Hyderabad and Masters from Arizona State University. He received his Ph.D. from University of Wyoming. His primary academic research interests are in innovative teaching and learning strategies, use of emerging technologies, and mobile teaching and learning strategies.

Thursday March 21, 2019		
2:30 PM – 4:30 PM		
Session 3A (Agriculture Leaders Room)	Session 3B (Agriculture Production Room)	Session 3C (Agriculture Science Room)
Workshop 2:30 PM - 4:30 PM	Workshop 2:30 PM - 4:30 PM	Workshop 2:30 PM - 4:30 PM
Uncovering the influence of contextual representation on engineering problem solving in engineering students and practicing engineers (2 Hours) <i>David Hurwitz, Shane Brown, Sean Gestson</i> <i>Oregon State University</i>	Focus More on Teaching than Grading: Try MATLAB Grader (2 Hours) <i>Eric Davishahl</i> <i>Whatcom Community College</i> <i>Jeff Alderson</i> <i>Mathworks</i>	Spatial VisTM: A sketching app with automatic grading to teach spatial visualization skills to introductory engineering students (2 Hours) <i>Lelli Van Den Einde</i> <i>University of California, San Diego</i>

Thursday March 21, 2019
6:00 PM – 8:00 PM
Dinner at The Vue

Friday, March 22, 2019		
8:00 AM – 9:00 AM		
La Sells Conference Center - Guistina Gallery		
8:00 AM - 8:30 AM		Breakfast
8:30 AM - 9:00 AM		Update from ASEE National Board (open to all attendees)
Friday, March 22, 2019		
9:15 AM – 11:15 AM		
Session 4A (Agriculture Leaders Room)	Session 4B (Agriculture Production)	Session 4C (Agriculture Science Room)
Workshop 9:15 AM - 11:15 AM	Workshop 9:15 AM - 11:15 AM	Workshop 9:15 AM - 11:15 AM
Safe Zone Ally Training Workshop: Level 1 (1 hour) <i>Alexandro Longo, Rowan University</i> <i>Robyn Sandekian, University of Colorado, Boulder</i> <i>Eduardo Cotilla-Sanchez, Oregon State University</i>	What's New with MATLAB (1 Hour) <i>Divyanshu Tiwari</i> <i>Mathworks</i>	Advancing Mechanical Engineering Education Through Mobile Learning Micro-Workshop Training (2 Hours) <i>Krishna Pakala, Lana Grover, Devshikha Bose</i> <i>Boise State University</i>
Safe Zone Ally Training Workshop: Level 2 (1 hour) <i>Alexandro Longo, Rowan University</i> <i>Robyn Sandekian, University of Colorado, Boulder</i> <i>Eduardo Cotilla-Sanchez, Oregon State University</i>	Introduction to Scrum and how to use it in engineering education (1 Hour) <i>Branimir Pejcinovic, Phillip Wong, Robert Bass</i> <i>Portland State University</i>	
11:30 AM – 1:00 PM		
Poster Session		
Increasing student engagement in Digital Logic through game-based laboratory assignments <i>Kevin P Pintong, Allan Douglas, Phil Howard, Troy Scevers</i> <i>Oregon Institute of Technology</i>		
Conceptual Model: Situation of of Key Influencers That Contribute to Transformative Learning in an Electrical and Computer Engineering Undergraduate Capstone Design Project Course <i>Rachael Cate, Donald Heer</i> <i>Oregon State University</i>		
Climate Perceptions of Transgender & Nonbinary Engineering Undergraduate Students <i>Andrea Haverkamp</i> <i>Oregon State University</i>		
Take-apart, hack and design: Repurposing an ink-jet printer for prototyping in mechanical design <i>Gerald Recktenwald</i> <i>Portland State University</i>		
Integrating Ethics Across the Civil Engineering Curriculum <i>Cara Poor, Mehmet Inan</i> <i>University of Portland</i> <i>Abigail Chase</i> <i>Stantec</i>		
Lunch and Roundtable Discussion		
1:15 PM – 3:00 PM		
O. H. Hinsdale Wave Research Laboratory		

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