

JOSEPH PIACENZA

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<https://www.instagram.com/deradlab/>

EDUCATION

Oregon State University, Corvallis, OR

June 2014 - Doctor of Philosophy Mechanical Engineering

- Dissertation Advisors: Irem Y. Tumer and Christopher Hoyle
- Dissertation: *Robust Design of Infrastructure Systems Incorporating User Behavior*

June 2012 – Master of Science Mechanical Engineering

- Thesis Advisors: Irem Y. Tumer and Christopher Hoyle
- Thesis: *Sustainable Building Design Framework: An Integrated Approach*

University of South Florida, Tampa, FL

May 2008 - Master of Business Administration

- Specialty Tracks: *Entrepreneurship, Management, Marketing*

University of South Florida, Tampa, FL

May 2001 - Bachelor of Science Mechanical Engineering

- Senior Capstone Design Project: Automobile Wheel Design

KEY TECHNICAL EXPERTISE

Systems Engineering; Model-Based Design; Complex System Optimization; Undergraduate Design Project Advising (e.g., SAE Formula/Baja); Robust Design; Life Cycle Assessment; Additive Manufacturing; Sustainable Building Design; Manufacturing Systems; Engineering Management

CURRENT POSITION

University of West Florida, Pensacola, FL

Assistant Professor, Hal Marcus College of Science and Engineering (HMCSE) - 08/2017-present

- Direct the Design Engineering Research and Development (De-Rad) Lab (<https://www.instagram.com/deradlab/>)
- Perform research, teaching, and service activities in the newly formed and ABET accredited (2019) Mechanical Engineering department, with a broad focus on engineering design.
- Contribute significantly to the Mechanical Engineering curriculum design, program vision, and ABET accreditation process.
- Co-founded and advise the Society of Automotive Engineers (SAE) Baja team (Fall 2017-current) (https://www.instagram.com/uwf_bajasae/).
- Advised the SAE Aero unmanned aerial vehicle team (2017/2018 year).

RESEARCH

Selected Research: University of West Florida (UWF)

Funded under the Department of Energy Y-12 National Security Complex.

- *Calibration of Numerically Controlled Manufacturing Systems:* A modular and transportable computer numerically controlled (CNC) machine calibration verification device to detect cyber-physical security threats in precision (e.g., nuclear, aerospace) manufacturing processes.

Pre-proposal accepted to the Save Our Seas Foundation, full proposal in review.

- *Creating 3D Digital Models to Study Elasmobranch Hydrodynamics and Provide Opportunities for Open-Access Education*: A transdisciplinary approach to understand how the attachment of satellite transmitters and animal-borne cameras can alter the hydrodynamic drag of these species.

Funded using UWF startup funds. (Note: Intellectual property protection in progress)

- *Using stereo-video camera systems on unmanned aerial vehicles to measure underwater targets (e.g., marine fauna, ship wrecks, coral reefs)*: Design, fabrication, and test of functional proof-of-concept stereo-video camera (SVC) system for unmanned aerial vehicles (UAVs), to enable SVC surveys from the air.

Proposal to be submitted November 2020 (NSF Engineering Design and System Engineering program)

- *A Model-Based Approach to Predict System Robustness: Microgrid Design Case Study*: An embedded/nested design optimization tool to help mitigate the effects of uncertain events during cascading failures, when designing concept-stage complex infrastructure systems.

Selected Research: California State University Fullerton (CSUF)

Funded under CSUF's JUNIOR Intramural Research Award and the Faculty Enhancement and Instructional Award.

- *Improving Computational Models for Concept Stage Sustainable Building Designs*: Understanding the Impact of Post-Occupancy Energy Usage in Sustainable Building Designs.
- *Investigating the Impact of Human-in-the-loop Decisions in Complex Systems*: An embedded optimization method for capturing the effect of human decision making during cascading failure events in complex infrastructure systems (e.g., microgrids).
- *Additive Manufacturing Design Strategies for Commercial Food Applications*: A scalable approach to 3D food printing, focusing on producing a diverse range of replicable food items for mid-range production facilities, such as schools and hospitals.

Center for Collaborative Research and Prototype Development (Director/Co-Founder)

01/2016-08/2017

- Conceptualized and authored a proposal to establish the Center for Collaborative Research and Prototype Development (CCRPD) in the College of Engineering and Computer Science (ECS) at CSUF.

CCRPD's mission is to provide a portal for directed engineering sciences research, and prototype design and manufacturing, to regional industry partners. The purpose is to create a mutually beneficial research platform between ECS and local industry, where students gain practical critical thinking skills explicitly relevant to a sponsoring partner's domain (e.g., aerospace, automotive, manufacturing).

Postdoctoral Research, Oregon State University

Funded under the Department of Energy's National Energy Technology Laboratory (NETL)

- *Optimization of Collaborative Energy Systems*: A computational framework to model the existing energy supply architecture in Oregon and Washington, considering regional resources, societal concerns, and conservation implementation strategies.

Doctoral Research, Oregon State University

Funded under University of Alabama in Huntsville Systems Engineering Consortium and NASA Marshall

- *Robust Design of Complex Infrastructure Systems*: A hybrid topological approach for the robust optimization of complex infrastructure systems integrating model-based design and network analysis.
- *Social Impact of Sustainable Building Design*: A structural modeling method to capture post occupancy effects on building users, to support sustainable engineering design.

- *Power System Optimization*: A model-based optimization method to determine the feasibility of energy conservation strategies based on existing power generation resource appropriation.
- *Sustainable Building Life Cycle Assessment*: A comparative sustainability assessment approach for building design materials capturing economic, environmental, and social impact.

Masters Research, Oregon State University

Funded under Better Bricks seed grant from Oregon Built Environment and Sustainable Technologies Center (Oregon BEST)

- *Integrated Design Analysis for Sustainable Buildings*: A model-based design approach for post occupancy building workspace optimization using a function-based product repository.

Master of Business Administration Capstone Project, University of South Florida

- *Business Marketing Plan*: A strategic marketing plan for Inghram’s Sit ‘N Stay Dog Academy including financial forecasting, market growth projections, and demographic analysis.

SELECTED GRANTS AND AWARDS

Awarded

As Principal Investigator: “International Design Engineering Technical Conferences (Virtual) Grant” University of West Florida, Hal Marcus College of Science and Engineering Resource Allocation Committee, \$349, awarded December 2020.

As Principal Investigator: “Using Stereo-Video Camera Systems on Unmanned Aerial Vehicles to Measure Surface and Underwater Targets” (co-PIs: S. Piacenza, J. Faller - CSUF), University of West Florida Research Administration Engagement, \$25,000, award beginning January 2021.

As Principal Investigator: “Calibration of Numerically Controlled Manufacturing Systems” (co-PIs: J. Faller - CSUF, B. Regez), Department of Energy Y-12 National Security Complex, \$101,693, award beginning October 2020.

As Principal Investigator: “International Design Engineering Technical Conferences Travel Grant” University of West Florida, Hal Marcus College of Science and Engineering Resource Allocation Committee, \$2,250, awarded October 2019.

As Principal Investigator: “Custom Wind Tunnel Test Balance Design and Fabrication” (co-PIs: S. Piacenza, C. Zhang), University of West Florida, Department of Mechanical Engineering, \$8,000, awarded October 2019.

As Co-Principal Investigator: “Toward a Stereo-Video Measuring Platform Using Unmanned Aerial Vehicles to Remotely Measure Marine Megafauna, Travel Grant” (PI: S. Piacenza), University of West Florida, Department of Mechanical Engineering, \$2,000, awarded May 2019.

As Principal Investigator: “Identification of Vulnerabilities, Threats, and Attacks on Advanced Manufacturing Systems” (co-PIs: J. Faller - CSUF, B. Regez), Department of Energy Y-12 National Security Complex, \$400,000, awarded January 2019.

As Principal Investigator: “Identification of Vulnerabilities, Threats, and Attacks on Advanced Manufacturing Systems” (co-PIs: J. Faller - CSUF, B. Regez.), University of West Florida, Office of Research and Sponsored Programs, \$20,000, awarded January 2019.

As Principal Investigator: “International Design Engineering Technical Conferences Travel Grant” University of West Florida, Hal Marcus College of Science and Engineering Resource Allocation Committee, \$2,250, awarded October 2018.

As Co-Principal Investigator: “Investigating Design Improvements for Sea Turtle Satellite Tracking Devices” (PI: S. Piacenza), University of West Florida, Office of Research and Sponsored Programs, \$7,500, awarded April 2018.

As Principal Investigator: “International Design Engineering Technical Conferences Travel Grant” University of West Florida, Hal Marcus College of Science and Engineering Resource Allocation Committee, \$2,250, awarded October 2017.

As Principal Investigator: “**UWF New Faculty Startup Fund**” University of West Florida, **\$40,000**, awarded August 2017.

As Co-Principal Investigator: “Mechanical Design Project I and Mechanical Design Project II” (Co-PI: N. Robson), Instructionally Related Activity (IRA), \$36,480, awarded April 2015.

As Principal Investigator: “Exploration of Additive Manufacturing Design Strategies for Commercial Food Applications” CSUF Junior Faculty Intramural, \$5,000, awarded April 2015.

As Principal Investigator: “Exploration of Additive Manufacturing Design Strategies for Commercial Food Applications” CSUF Faculty Enhancement and Instructional Development (FEID), \$4,500, awarded May 2015.

As Principal Investigator: “**CSUF New Faculty Startup Fund**” California State University Fullerton, **\$60,000**, awarded August 2014.

As Primary Author: “Robust Optimization of Complex Cyber-Physical Systems” (co-PIs: I. Y. Tumer, and C. Hoyle, Oregon State University), NASA Marshall (Sub-award to University of Alabama in Huntsville), \$35,000, awarded February 2013.

As Primary Author: “Reliability and Functional Failure Analysis of Complex Cyber-Physical Systems” (co-PIs: I. Y. Tumer, and C. Hoyle, Oregon State University), NASA Marshall (Sub-award to University of Alabama in Huntsville), \$40,000, awarded February 2012.

As Key Personnel: “Oregon State University Industrial Assessment Center (OSU IAC)” (co-PIs: G. Wheeler, J. Junker), Rural Energy Assessments and Renewable Energy Development Assistance Grant, U.S. Department of Agriculture, \$100,000, awarded August 2011.

As Key Personnel: “Oregon State University Industrial Assessment Center (OSU IAC)” (co-PIs: G. Wheeler, J. Junker), U.S. Department of Energy, \$1,751,959, awarded September 2011.

As Key Personnel: “Towards an Implementation Strategy of Energy Saving Industrial Manufacturing Processes and Technologies in the Pacific Northwest” (co-PIs: G. Wheeler, J. Junker, OSU IAC), Oregon Build Environment and Sustainable Technologies Center (Oregon BEST), \$35,000, awarded August 2011.

In Preparation or Submitted

As Principal Investigator: “Understanding the Impact of Decision Making on Robustness During Complex System Design” (co-PIs: J.K. Faller, California State University Fullerton, and E. Cotilla-Sanchez, Oregon State University), National Science Foundation Engineering Design and Systems Engineering, \$750,000, in preparation to submit January 2021.

As Principal Investigator: “Functional Prototype of Calibration Device of Numerically Controlled Manufacturing Systems” (co-PIs: J. Faller - CSUF, B. Regez), Department of Energy Y-12 National Security Complex, \$250,000, submitted August 2020, not funded.

As Co-Principal Investigator: “Creating 3D Digital Models to Study Elasmobranch Hydrodynamics and Provide Opportunities for Open-Access Education” (PI: N. Robinson, co-PIs: C. Zhang, S. Piacenza, D. Irschick, University of Massachusetts at Amherst, D. García-Párraga and J. Luis, Oceanogràfic, Save Our Seas Foundation, \$29,220, submitted June 2020, pre-proposal accepted, full version *in review*).

As Co-Principal Investigator: “Sea3D Filament Recycling and 8-axis Scanning/Measuring Device” (PI: M. Basso, co-PI: N. Gislason), University of West Florida Technology Fee Grant, \$57,552, submitted February 2020, funding withdrawn due to COVID-19.

As Co-Principal Investigator: “Improving Satellite Tag Attachment Methods by Replicating Failure Due to Growth Rates of Juvenile Hard-Shelled Sea Turtles” (PI: S. Piacenza, co-PI: C. Zhang, and D. Fries, Institute for Human and Machine Cognition), Florida Sea Turtle Grants Program, \$30,601, submitted November 2019, not funded.

As Co-Principal Investigator: “Investigation of Methodologies for the Design/Re-Design of DON Facilities and Ships to Counter UAV Threats” (PI: D. Van Bossuyt, co-PI: K. Giles, Naval Post Graduate School, co-PI: George Moore, Middlebury Institute of International Studies), Naval Post Graduate School CRUSER, \$150,000, submitted August 2019, not funded.

As Co-Principal Investigator: “Planning Grant: Engineering Research Center for Unmanned Aerial Systems Security” (PI: G. Francia, co-PI: H. Sevil), National Science Foundation, \$99,443, submitted May 2019, not funded.

As Co-Principal Investigator: “White Paper: Counter Micro UAV Threats Through Analysis and Design/Re-Design of Facilities and Ships” (PI: D. Van Bossuyt, co-PI: K. Giles, Naval Post Graduate School), Naval Post Graduate School, \$1,200,00, submitted February 2019, not funded.

As Co-Principal Investigator: “Streamlining Satellite Tags: Minimizing Behavioral Impacts of Satellite Transmitters While Increasing Tracking Duration for Juvenile Sea Turtles,” (PI: S. Piacenza, co-PI: S. Mayoral), Florida Sea Grant Letter of Intent, \$196,000, submitted February 2019, not invited for full proposal.

As Co-Principal Investigator: “Investigating the Hydrodynamic Drag of State-of-the-Art Satellite Transmitters on Juvenile Hard-Shell Sea Turtles in Florida” (PI: S. Piacenza, co-PI: S. Mayoral), Florida Sea Turtle Grants Program, \$43,086, submitted November 2018, not funded.

As Co-Principal Investigator: “Integrating Undergraduate Biology and Mechanical Engineering Researchers into Improving the Design of Sea Turtle Satellite Tags” (PI: S. Piacenza), University of West Florida, UWF Quality Enhancement Program, \$15,000, submitted April 2018, not funded.

As Co-Principal Investigator: “Investigating Design Improvements for Sea Turtle Satellite Tracking Devices” (PI: S. Piacenza), Eppley Foundation, \$15,000, submitted January 2018, not funded.

As Co-Principal Investigator: “Investigating Design Improvements for Sea Turtle Satellite Tracking Devices” (S. Piacenza), Waitt Foundation, \$10,000, submitted February 2018, not funded.

As Principal Investigator: “Cyber-Physical Security Framework for Mitigating Vulnerabilities, Threats, and Attacks on Distributed Control Systems” (co-PIs: E. Kalaimannan, J. Faller - CSUF), U.S. Navy Surface Warfare Center, \$204,022, submitted December 2017, not funded.

As Principal Investigator: “Emulating Programmable Logic Controllers for Cyber-Security Applications” (co-PIs: M. Goffman, J. Faller), U.S. Navy Surface Warfare Center, \$146,413, submitted December 2016, not funded.

As Principal Investigator: “Concept-Stage Design Framework for Complex Cyber-Physical Infrastructure Systems” (co-PI: J. Faller, CSUF), Google Faculty Research Awards Program, \$84,220, submitted March 2016, not funded.

As Co-Principal Investigator: “Development of comprehensive post-earthquake rainfall induced landslide (PERIL) hazard mitigation framework” (PI: B. Tiwari, co-PIs: K. Faller, M. Goffman, S. Mayoral, J. Miller, P. Mishra, D. Naish, Y. Tian, California State University Fullerton), National Science Foundation, \$2,044,282, submitted December 2014, not funded.

As Co-Principal Investigator: “Development of the California State University Fullerton Incubator (CSUFI)” (PI: J. Jackson, co-PI: K. George, California State University Fullerton), U.S. Department of Commerce, \$500,000, submitted November 2014, not funded.

As Principal Investigator: “Concept-Stage Design Framework for Complex Cyber-Physical Infrastructure Systems” National Science Foundation EARly-concept Grants for Exploratory Research (EAGER), \$300,000, submitted September 2014, not funded.

As Key Personnel: “Design of Robust Cyber-Physical Energy Infrastructure Systems” (co-PIs: C. Hoyle, E. Cotilla-Sanchez, and I. Y. Tumer, Oregon State University), National Science Foundation, \$500,000, submitted June 2014, not funded.

STUDENT ADVISEE GRANTS

As Co-Advisor: “3d Printing Recycled Plastic,” (undergraduate A. Johnson), University of West Florida, Office of Undergraduate Research, \$750, awarded December 2020.

As Advisor: “Design and Fabrication of the Baja Data Acquisition System,” (undergraduate S. Warner), University of West Florida, Office of Undergraduate Research, \$400, awarded December 2020.

As Co-Advisor: “Investigating Ways to Improve Longevity of Satellite-linked Platform Terminal Transmitters on Juvenile Sea Turtles,” (graduate A. Vidal), University of West Florida, Graduate Research Grant, \$1500, awarded October 2020.

As Advisor: “Polymer Recyclability and Processing,” (undergraduate J. Farina), University of West Florida, Office of Undergraduate Research, \$750, awarded October 2020.

As Advisor: “Skateboard Manufacture,” (undergraduate D. Tillman), University of West Florida, Office of Undergraduate Research, \$750, awarded October 2020.

As Advisor: “SAE Baja,” (undergraduate B. Nguyen), University of West Florida, Office of Undergraduate Research, \$750, awarded October 2020.

As Advisor: “SAE Baja Drivetrain Capstone,” (undergraduate R. Strong), University of West Florida, Office of Undergraduate Research, \$750, awarded October 2020.

As Advisor: “Skateboard Manufacture,” (undergraduate G. Ghesquiere), University of West Florida, Office of Undergraduate Research, \$750, awarded December 2019.

As Advisor: “Baja SAE Drivetrain,” (undergraduate A. Smith), University of West Florida, Office of Undergraduate Research, \$750, awarded December 2019.

As Advisor: “Baja SAE Chassis,” (undergraduate S. Warner), University of West Florida, Office of Undergraduate Research, \$750, awarded November 2019.

As Advisor: “Baja SAE Suspension,” (undergraduate S. Thornton), University of West Florida, Office of Undergraduate Research, \$750, awarded November 2019.

As Advisor: “SAE Baja Competition Travel, Cookeville, Tennessee” (undergraduates S. Thornton, K. Preston, A. Smith, S. Allen, J. Guedez, M. Letsinger, C. Cloud, S. Warner, R. Strong, D. Mason, A. Ardoin K. Preston), University of West Florida, Office of Undergraduate Research, \$6,050, awarded April 2019.

As Advisor: “Identification of Vulnerabilities, Threats, and Attacks on Advanced Manufacturing Systems,” (undergraduate M. Jackson), University of West Florida, Office of Undergraduate Research, Summer Undergraduate Research Program Explorer, \$2,500, awarded April 2019.

As Advisor: “Sea Turtle Hydrodynamics,” (undergraduate B. Kelly), University of West Florida, Office of Undergraduate Research, \$750, awarded November 2018.

As Advisor: “Doggie Prosthetic,” (undergraduate P. Maynard), University of West Florida, Office of Undergraduate Research, \$750, awarded November 2018.

As Advisor: “Sea Turtle Geo-Navigation,” (undergraduate S. Corbin), University of West Florida, Office of Undergraduate Research, \$750, awarded November 2018.

As Advisor: “Sea Turtle Tag Design and Development,” (undergraduate M. Teets), University of West Florida, Office of Undergraduate Research, \$750, awarded November 2018.

As Advisor: “SAE Baja,” (undergraduate E. Terwilliger), University of West Florida, Office of Undergraduate Research, \$750, awarded November 2018.

As Advisor: “SAE Baja Competition Travel” (undergraduates S. Thornton, D. Brauneis, D. Mason), University of West Florida, Office of Undergraduate Research, \$1,275, awarded June 2018.

As Advisor: “Exploration of Pre-Packaging Food Cartridge Design Strategies for Commercial 3D Food Printing Applications,” (undergraduate J. Guedez), University of West Florida, Office of Undergraduate Research, Summer Undergraduate Research Program Explorer, \$2,500, awarded April 2018.

As Co-Advisor: “Designing a Better Juvenile Sea Turtle Satellite Tag,” (undergraduate A. Kenney, Advisor: S. Piacenza), University of West Florida, Office of Undergraduate Research, Summer Undergraduate Research Program, \$2,500, awarded April 2018.

As Advisor: “Exploration of Pre-Packaging Food Cartridge Design Strategies for Commercial 3D Food Printing Applications,” (undergraduate R. Barbosa), University of West Florida, Office of Undergraduate Research, Summer Undergraduate Research Program, \$2,500, awarded April 2018.

As Advisor: “SAE Aero Design and Manufacturing,” (undergraduate A. Head), University of West Florida, Office of Undergraduate Research, \$750, awarded February 2018.

As Advisor: “Exploration of Pre-Packaging Food Cartridge Design Strategies for Commercial 3D Food Printing Applications,” (undergraduate N. Shields), University of West Florida, Office of Undergraduate Research, \$500, awarded September 2017.

As Co-Advisor: “Designing a Better Juvenile Sea Turtle Satellite Tag,” (undergraduates A. Kenney, N. Shields, Advisor: S. Piacenza), University of West Florida, Office of Undergraduate Research, \$750, awarded September 2017.

As Advisor: “SAE Baja Design and Manufacturing,” (undergraduate D. Brauneis), University of West Florida, Office of Undergraduate Research, \$750, awarded September 2017.

PUBLICATIONS

Journal Publications (Peer Reviewed):

- B. Taylor, D. O'Connell, C. Kehl, **J. R. Piacenza**, S. E. Piacenza, J. Faller, 2020 "A Computational Framework for Studying Energetics and Resource Management in Sea Turtle Migration and Autonomous Systems," Accepted, in Revision: *Journal of Theoretical Biology*.
- J. R. Piacenza**, J. Faller, B. Regez, L. Gomez, "Verification of Numerically Controlled Manufacturing Processes to Help Mitigate Cyber-Physical Threats," Accepted, in Revision: *ASME Journal of Journal of Manufacturing Science and Engineering*.
- B. Taylor, C. Charbonneau, C. Kehl, **J. R. Piacenza**, S. E. Piacenza, J. Faller, 2020 "Energetic Analysis of Tagged Sea Turtles Using Geomagnetic Navigation," In Press: *The Journal of Navigation*.
- S. Lin, B. Albarhami, S. Mayoral, **J. R. Piacenza**, 2020 "Understanding the Effects of Capturing Climate and Occupancy Trends during Concept-Stage Sustainable Building Design," *ASME Journal of Solar Energy Engineering: Including Wind Energy and Building Energy Conservation*.
- J. R. Piacenza**, J. Faller, E. Cotilla-Sanchez, C. Hoyle, and I. Tumer, 2020 "Evaluating the Impact of Decision Making in Robust Design," *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering*.
- J. R. Piacenza**, H. Weiss, M. Patel, S. Moore, T. Nguyen, N. Shields, 2018 "3D Food Printing Insights and Opportunities: A Capstone Design Case Study," *International Journal of Engineering Research and Innovation*.
- J. R. Piacenza**, Mir Abbas Bozorgirad, C. Hoyle, and I. Y. Tumer, 2017 "Robust Topology Optimization of Complex Infrastructure Systems," *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering* 3(2).
- B. DuPont, C. Hoyle, **J. R. Piacenza**, R. Azam, S. Proper, E. Cotilla-Sanchez, D. Oryshchyn, S. Zitney, and S. Bossart, 2016 "An Optimization Framework for Decision Making in Large, Collaborative Energy Supply Systems," *Journal of Energy Resources Technology* 138(5).

Unpublished Completed Manuscripts:

- T. Siegfried, M.M.P.B. Fuentes, **J. R. Piacenza**, E. Roberto, N. Robinson, M. Ware, and S.E. Piacenza. "Validating the Use of Stereo-Video Cameras to Measure Sea Turtles In Situ," In Review: *Journal of Experimental Marine Biology and Ecology*.
- J. R. Piacenza**, Piacenza, S.E., T.R. Siegfried, N. Robinson, "Toward a Stereo-Video Measuring Platform Using Unmanned Aerial Vehicles to Remotely Measure Marine Megafauna," In Preparation (to be submitted January 2021): *Remote Sensing Special Issue: Remote Sensing Applications for Sea Turtle Conservation*.
- J. R. Piacenza**, B. Kelly, K. Nguyen, Z. Miles, S. Mayoral, S. Piacenza, C. Zhang, and, "Using Computational Fluid Dynamics Modelling to Explore Hydrodynamic Drag of Existing and Novel Platform Terminal Transmitters for Sea Turtles," In Preparation (to be submitted January 2021): *PLoS ONE*.

Conference Publications (Peer Reviewed):

- J. R. Piacenza**, J. K. Faller, B. Regez, L. Gomez, 2020 "Investigating Cyber-Physical Threats of Numerically Controlled Manufacturing Processes," *International Design Engineering Technical Conferences*, Virtual.
- B. Taylor, C. Charbonneau, C. Kehl, **J. R. Piacenza**, S. E. Piacenza, J. Faller, 2019 "Energetic Analysis of Tagged Sea Turtles Using Geomagnetic Navigation," *International Navigation Conference*, Edinburgh, UK.
- B. Kelly, K. Nguyen, Z. Miles, S. Mayoral, S. E. Piacenza, C. Zhang, **J. R. Piacenza**, 2019 "Exploring Design Trades to Extend Useful Life of Platform Terminal Transmitters on Sea Turtles," *International Design Engineering Technical Conferences*, Anaheim, California.

- J. R. Piacenza**, H. Weiss, M. Patel, S. Moore, T. Nyguyen, N. Shields, 2018 "3D Food Printing Insights and Opportunities: A Capstone Design Case Study," *International Association of Journals and Conferences*, Orlando, Florida.
- J. R. Piacenza**, S. E. Piacenza, S. Mayoral, A. Kenney, N. Shields, 2018 "Design Opportunities for Sea Turtle Tracking Devices," *International Design Engineering Technical Conferences*, Quebec City, Canada.
- S. Lin, B. Albarhami, S. Mayoral, and **J. R. Piacenza**, 2018 "Understanding the Importance of Capturing Climate and Occupancy Trends During Concept-Stage Sustainable Building Design," *International Design Engineering Technical Conferences*, Quebec City, Canada.
- J. R. Piacenza**, B. Albarhami, S. Lin, and S. Mayoral, 2017 "Understanding the Importance of Post Occupancy Usage Trends During Concept-Stage Sustainable Building Design," *International Design Engineering Technical Conferences*, Cleveland, Ohio.
- S. Lin, B. Albarhami, S. Mayoral, and **J. R. Piacenza**, 2017 "Understanding the Impact of Climate Zones for Occupancy Trends in Sustainable Housing Designs," *International Design Engineering Technical Conferences*, Cleveland, Ohio.
- K. S. Faruqui, B. B. Nguyen, A. Carter, T. Hinz, J. Surmi, L. Robles, Z. Zousel, J. Ho, F. Kakish, G. Wagner, and **J. R. Piacenza**, 2017 "Conceptual Regenerative Nozzle Cooling Design for a Hydroxyl-Terminated Polybutadiene and Oxygen Hybrid Rocket Engine," *International Design Engineering Technical Conferences*, Cleveland, Ohio.
- J. R. Piacenza**, S. Mayoral, S. Lin, L. Won, and X. Grooms, 2016 "Understanding the Impact of Student Energy Usage in Sustainable Campus Housing Designs," *International Design Engineering Technical Conferences*, Charlotte, North Carolina.
- K. Matthys, W. Walsh, J. Long, D. Wagner, I. Powell, M. Cox, and **J. R. Piacenza**, 2016 "Identifying Challenges in the Design and Manufacturing of Small Scale Rocket Engines," *International Design Engineering Technical Conferences*, Charlotte, North Carolina.
- I. Bernal, H. Guido, S. Rautus, and **J. R. Piacenza**, 2016 "Toward an Experimental Approach for Magnetocaloric Refrigeration," *International Design Engineering Technical Conferences*, Charlotte, North Carolina.
- J. R. Piacenza**, Mir Abbas Bozorgirad, C. Hoyle, and I. Y. Tumer, 2015 "Robust Topology Optimization of Complex Infrastructure Systems," *International Design Engineering Technical Conferences*, Boston, Massachusetts.
- J. R. Piacenza**, John Fields, C. Hoyle, and I. Y. Tumer, 2015 "Quantification of Indoor Environmental Quality in Sustainable Building Designs Using Structural Equation Modeling," *International Conference for Engineering Design*, Milan, Italy.
- B. Dupont, J. Wardman, R. Azam, S. Proper, C. Hoyle, E. Cotilla-Sanchez, **J. R. Piacenza**, D. Oryshchyn, and S. Bossart. 2015 "Decision Making for the Collaborative Energy Supply System of Oregon and Washington," *American Society for Mechanical Engineering Power and Energy Conference*, San Diego, California.
- C. Hoyle, **J. R. Piacenza**, E. Cotilla-Sanchez, and B. Dupont, 2014 "Robust Optimization of Complex Cyber-Physical Systems," *American Society for Engineering Management International Annual Conference*, Virginia Beach, Virginia.
- B. Dupont, **J. R. Piacenza**, R. Azam, J. Wardman, S. Bossart, D. Oryshchyn, C. Hoyle, and E. Cotilla-Sanchez, 2014 "Toward the Optimization of Collaborative Energy Supply Systems," *American Society for Engineering Management International Annual Conference*, Virginia Beach, Virginia.
- J. R. Piacenza**, J. J. Fields, Mir Abbas Bozorgirad, C. Hoyle, and I. Y. Tumer, 2013, "Robust Design of North American Power Grid to Mitigate Cascading Failures," *International Mechanical Engineering Congress & Exposition*, San Diego, California.
- J. R. Piacenza**, S.H. Seyedmahmoudi, Karl R. Haapala, C. Hoyle, and I. Y. Tumer, 2013, "Comparison of Sustainability Performance: Cross Laminated Timber Versus Concrete," *International Design Engineering Technical Conferences*, Portland, Oregon.

- J. R. Piacenza**, I. Y. Tumer, C. Hoyle, and J. Fields, 2012, "Power Grid System Design Optimization Considering Renewable Energy Strategies and Environmental Impact," *International Mechanical Engineering Congress & Exposition*, Houston, Texas.
- J. R. Piacenza**, I. Y. Tumer, and C. Hoyle, 2012, "Lighting Optimization for Sustainable Building Design Considering User Productivity," *International Design Engineering Technical Conferences & Computers and Information in Engineering Conference*, Chicago, Illinois.
- J. R. Piacenza**, I. Y. Tumer, R. Stone, J. Knighton, and I. Elzeyadi, 2011, "Towards a System Analysis and Integration Framework for Early Design Trades in Sustainable Building Design," *2011 International Mechanical Engineering Congress & Exposition*, Denver, Colorado.

Publications (Non-Peer Reviewed):

- Junker, J., **Piacenza, J.R.**, Jones, M., Analyst, P. M. E., Analyst, J. A. E., Junker, D., and Wheeler, G., 2011, "Save Energy Now Industrial Assessment Report for McFarland Cascade," Oregon State University, Corvallis.
- Junker, J. F., **Piacenza, J.R.**, Crowley, C., Glenn, A., Kilgore, B., Junker, D., McMillan, P., Abel, J., and Wheeler, G., 2011, "Save Energy Now Industrial Assessment Report for Columbia Forest Products," Oregon State University, Corvallis.

PROFESSIONAL EXPERIENCE

California State University Fullerton, Fullerton, CA

Assistant Professor, College of Engineering and Computer Science (ECS) - 08/2014-08/2017

- Perform research, teaching, and service activities in the Mechanical Engineering department, with a broad focus on engineering design, including 2015 ABET review.
- Revitalized the Society of Automotive Engineers (SAE) Baja team in 2014 after a 6 year hiatus.
- Advise the SAE Formula race team (https://www.instagram.com/csuf_fsae/).
- Advise the SAE Baja race team (https://www.instagram.com/csuf_titan_baja/).
- Advise the CSUF Student Aerospace Society (<https://www.instagram.com/csufaerospace/>).
- Co-advise the Society of Unmanned Aerial Vehicle Engineers (SUAVE) club (<https://www.instagram.com/csufsuave/>).

Oregon State University, Corvallis, OR

Postdoctoral Scholar - 06/2014-08/2014

- Collaborate with the Department of Energy's National Energy Technology Laboratory.
- Develop a two-stage optimization approach for modeling the renewable energy supply system and network topology of Oregon and Washington.
- Identify key design trade-offs while meeting system-level performance requirements.

Oregon State University, Corvallis, OR

Graduate Research Assistant - Complex Engineered Systems Design Laboratory - 08/2010-06/2014

GRA working under the supervision of Dr. Irem Y. Tumer and Christopher Hoyle

- Collaborate with researchers at University of Alabama Huntsville Center for System Studies.
- Develop a novel approach to minimize cascading failure in early design.
- Conduct a psychometric survey to capture user preferences for sustainable buildings.
- Experimental design for empirical post occupancy user data collection in LEED buildings.
- Ethnographically observe schematic design of the Oregon Sustainability Center.

Energy Efficiency Center at Oregon State University (U.S. Department of Energy Industrial Assessment Center (IAC), Corvallis, OR
Operations Manager - 08/2010-01/2012

- Quantify energy conservation strategies for industrial manufacturing applications (<https://eec.oregonstate.edu>).
- Supervise center operations including student analyst hiring, training, and financial budgeting.
- Lead on site energy assessments to quantify energy savings based on reduction strategies.

Classic Camber (Automotive Startup), Pinellas Park, FL
Founder / Owner - 04/2003-08/2010

- Conceptualize business plan, obtain venture capital, and execute facility build-out of automotive startup specializing in European vehicle restoration and retail merchandise sales.
- Manage internal company staff, additional outside contractors, coordinating engineers, automotive technicians, sales and marketing representatives, and e-commerce designers.
- Design, test, and manufacture application-specific retail products.
- Budget and provide competitive salary and health insurance for employees.
- Organize sale of company including financial negotiations and new owner training.

Harris Corporation, Melbourne, FL
Mechanical Engineer - 06/2001-03/2002

- Design thermal and vibration testing fixtures for automotive and aviation electronic components.
- Perform thermal and vibration data acquisition based on engineering requirements.

TEACHING EXPERIENCE

University of West Florida, Pensacola, FL
Assistant Professor - 08/2017-Present

Introduction to Design Theory and Methodology (EGN2911L)

- Adapted from David Ullman's *Introduction to Design* course at Oregon State University.
- Use creativity and optimization in solving mechanical design problems.
- Address customer requirements and engineering specifications (i.e., house of quality) for organization, planning, and economics.

Capstone Design (EGN4950)

- Lead project-based class that captures design theory and methodology.
- Help students develop principles for CAD/CAE philosophy, optimization, product liability, probability/statistics, ASME codes, safety, human factors, material selection, legal aspects of design, and professional ethics.

Modern Product Design (EML4900)

- Adapted for the ME undergraduate curriculum from Robert Stone's *Modern Product Design* graduate course at Oregon State University.
- Introduce students to the capabilities of existing design tools and methodologies.
- Lead collaborative toy design project with the UWF Educational Research Center for Childhood Development.

Machine Design (EML3500)

- Introduce students to appropriate static and dynamic failure theories for various machine components.
- Select mechanical components for a given load situation and analyze for failure.
- Describe competitive analysis and provide insights on risk and reliability.

Junior Engineering Design I/II (EGN3913L/3914L)

- Lead project-based class that captures design theory and methodology.
- Help student develop principles for CAD/CAE philosophy, optimization, product liability, probability/statistics, ASME codes, safety, human factors, material selection, legal aspects of design, and professional ethics.

Computer Aided Design and Modeling (EML3022)

- Identify basic dimensioning and tolerancing terminology and requirements.
- Perform simulations of mechanical and thermal processes.

Engineering Mechanics/Dynamics (EGM3401)

- Review the dynamics of particles and rigid bodies for rectilinear translation, curvilinear motion, rotation and plane motion.
- Apply the principles of work and energy, impulse, and momentum.

Students Mentored (UWF)

- Alex Vidal (M.S. Biology, Expected Spring 2021), Tabitha Siegfried (M.S. Biology, Expected Fall 2020), Steven Thornton (B.S. Mechanical Engineering, 2019), Bryce Follett (B.S. Mechanical Engineering, 2019), Emma Roberto (B.S. Biology 2019): Using stereo-video camera systems on unmanned aerial vehicles to measure underwater targets (e.g., marine fauna, ship wrecks, coral reefs).
- Kristina Samborski (NIH MARC Scholar, B.S. Biology, Expected Spring 2021), Sabrina Corbin (B.S. Mechanical Engineering, Expected Spring 2021), Noah Valloch (B.S. Mechanical Engineering, Expected Spring 2021), Andy Hermann (B.S. Mechanical Engineering, Expected Spring 2021), Heather Mixon (B.S. Mechanical Engineering, 2019), Michael Teets (B.S. Mechanical Engineering, Spring 2018), Samuel Schemmer (B.S. Mechanical Engineering, 2018), Alexia Kenney (B.S. Biology, 2018): Evaluating design trades to extend useful life of satellite tags for marine fauna.
- Nikolai Shields (B.S. Computer Engineering, Expected Spring 2019), Renan Barbosa (B.S. Mechanical Engineering, Expected Spring 2021), Jorge Guedez (B.S. Mechanical Engineering, Expected Spring 2021): A scalable approach to designing cartridge-type food storage for use in 3D food printers.
- Marcus Jackson (B.S. Mechanical Engineering, 2019): Identification of Vulnerabilities, Threats, and Attacks on Advanced Manufacturing Systems.

California State University Fullerton, Fullerton, CA

Assistant Professor - 08/2014-08/2017

Kinematics of Mechanisms (ME335)

- Introduce the design and analysis of machines, linkages, and mechanisms.
- Develop course lectures, including curriculum relevant case studies.

Senior Design (ME414/419)

- Lead project-based class that captures design theory and methodology.
- Help students develop principles for CAD/CAE philosophy, optimization, product liability, probability/statistics, ASME codes, safety, human factors, material selection, legal aspects of design, and professional ethics.

Mechanical Design (ME421)

- Introduce students to appropriate static and dynamic failure theories for various machine components.
- Select mechanical components for a given load situation and analyze for failure.
- Describe competitive analysis and provide insights on risk and reliability.

Optimization of Engineering Design (ME454)

- Introduce the application of analytical and computer optimization techniques to engineering design problems.
- Present design as an optimization task.

Course Development

Foundations of System Engineering (Graduate)

- Design course specializing in the fundamentals of systems engineering and model-based design methods.

Decision Based Design (Graduate)

- Design course focusing on decision-based design as a generic tool for optimal decision-making, with an emphasis on applications in complex system design.

Students Mentored (CSUF Undergraduate, Mechanical Engineering)

- Monika Vaghashia (B.S., 2017) - Design of experiments approach for application-based food additive manufacturing designs.
- Vincent Nguyen (B.S., 2017) - Design, manufacturing, and testing of automobile composite wheel barrels (using the 2016 CSUF SAE Formula vehicle as a test case).
- Fabio Matiello (Brazilian Scientific Mobility Program, Summer 2016) - Topology optimization and design validation of an automobile rear suspension (using the 2016 CSUF SAE Baja vehicle as a test case).
- Caio Morales (Brazilian Scientific Mobility Program, Summer 2015) - Extend current additive manufacturing technologies to enable novel designs for 3D food printing.
- Kalen Eidenschink (B.S., 2015) - Design, manufacture, and validate a functional composites curing “oven” for carbon fiber components and tools.
- Andreas Schauer (B.S., 2015) - Explore interdisciplinary team management strategies for engineering driven business ventures.

Students Mentored (CSUF Graduate)

- Johnathan Woodland (M.S. Mechanical Engineering, Spring 2018) – Design and manufacturing of a homogeneous and heterogeneous material 3D food printer (*Committee Member*).
- Kory Matthys (M.S. Mechanical Engineering, Spring 2018) - Exploring the thermodynamic and momentum exchange response of Methane in the secondary chamber of a stage cycle pre-burner (*Committee Member*).
- Karthik Shanmugam (M.S. Electrical Engineering, Spring 2018) - Emulating Programmable Logic Controllers for Cyber-Security Applications (*Committee Member*).
- Shobhana Chetri (M.S. Mechanical Engineering, Expected Spring 2017) – Investigating a function based design framework for food based additive manufacturing.
- Sean Lin - (M.S. Mechanical Engineering, 2017) - Understanding the impact of student energy usage in sustainable campus housing designs (*Advisor*).
- Bahaa Albarhami (M.S. Mechanical Engineering., Fall 2016) - Improving computational model in concept-stage sustainable building designs (*Advisor*).
- Dereck Ferdaws (M.S. Mechanical Engineering, Fall 2015) - Design, manufacture, and validate a portable test bench for biomedical catheter testing (*Advisor*).

Oregon State University, Corvallis, OR

Instructor - 01/2014-06/2014

Mechanical Component Design

- Co-teach lectures with tenure track OSU faculty (70-80 students).
- Develop course lectures, including curriculum relevant case studies.

Graduate Teaching Assistant - 08/2011-12/2013

Introduction to Design

- Perform design lectures during lab (20-30 students).
- Lead annual ASME based student design competition.

Mechanical Component Design

- Lead project-based reverse engineering labs to examine component and system level failure analysis.
- Lecture on risk and reliability methods (70-80 students).

Computer-Aided Design and Manufacturing

- Directed aerospace based CAD / CNC manufacturing and design projects.
- Teach Delmia dynamic modeling tool to lab sections (25-30 students).

Decision Based Design (*graduate course*)

- Collaborate with professor to refine and enhance course curriculum (e.g., uncertainty quantification, utility theory, discrete choice analysis)
- Supervise and assist students with computer simulations during lab sessions
- Grade homework assignments and exams including simulation source code

Course Development

As Key Contributor - Bio-inspired Design (Undergraduate)

- Created undergraduate/graduate level design course specializing in bio-inspired design and biomimicry. Course materials include syllabus, lectures, homework, exams, and in-class activities.
- Primary topics include: Case-based reasoning, function-behavior-structure, functional modeling, Design Analogy to Nature Engine, AskNature, Bio Search, and Bio TRIZ.

As Key Contributor - Engineering Risk and Reliability (Undergraduate)

- Developed an undergraduate level risk and reliability course, primarily as senior elective to follow Introduction to Design and Mechanical Component Design.
- Primary topics include: Failure Modes and Effects Analysis (FMEA), Reliability Block Diagram (RBD), and Robust Design (RD).

TECHNICAL PRESENTATIONS

Conference Presentations:

IDETC 2020 - "Investigating Cyber-Physical Threats of Numerically Controlled Manufacturing Processes", J. R. Piacenza, J. K. Faller, B. Regez, L. Gomez, Virtual.

IDETC 2019 - "Exploring Design Trades to Extend Useful Life of Platform Terminal Transmitters on Sea Turtles", J. R. Piacenza, B. Kelly, K. Nguyen, Z. Miles, S. Mayoral, S. E. Piacenza, C. Zhang, Anaheim, California.

IDETC 2018 - "Understanding the Importance of Capturing Climate and Occupancy Trends During Concept-Stage Sustainable Building Design", J. R. Piacenza, B. Albarhami, S. Lin, and S. Mayoral, Quebec City, Canada.

IDETC 2018 - "Design Opportunities for Sea Turtle Tracking Devices", J. R. Piacenza, S. E. Piacenza, S. Mayoral, A. Kenney, N. Shields, Quebec City, Canada.

- International Association of Journals and Conferences 2018** - "3D Food Printing Insights and Opportunities: A Capstone Design Case Study", J. R. Piacenza, H. Weiss, M. Patel, S. Moore, T. Nguyen, N. Shields, Orlando, Florida.
- IDETC 2017** - "Understanding the Importance of Post Occupancy Usage Trends During Concept-Stage Sustainable Building Design", J. R. Piacenza, B. Albarhami, S. Lin, and S. Mayoral, Cleveland, Ohio.
- IDETC 2016** - "Toward an Experimental Approach for Magnetocaloric Refrigeration", I. Bernal, H. Guido, S. Rautus, and J. R. Piacenza, Charlotte, North Carolina.
- IDETC 2016** - "Identifying Challenges in the Design and Manufacturing of Small Scale Rocket Engines", K. Matthys, W. Walsh, J. Long, D. Wagner, I. Powell, M. Cox, and J. R. Piacenza, Charlotte, North Carolina.
- IDETC 2016** - "Understanding the Impact of Student Energy Usage in Sustainable Campus Housing Designs", J. R. Piacenza, S. Mayoral, S. Lin, L. Won, and X. Grooms, Charlotte, North Carolina.
- IDETC 2015** - "Robust Topology Optimization of Complex Infrastructure Systems", J. R. Piacenza, S. Proper, M. A. Bozorgirad, C. Hoyle, and I. Y. Tumer, Boston, Massachusetts.
- International Conference for Engineering Design 2015** - "Quantification of Indoor Environmental Quality in Sustainable Building Designs Using Structural Equation Modeling", J. R. Piacenza, John Fields, C. Hoyle, and I. Y. Tumer, Milian, Italy.
- IDETC 2013** - "Comparison of Sustainability Performance: Cross Laminated Timber Versus Concrete", J. R. Piacenza, S.H. Seyedmahmoudi, Karl R. Haapala, C. Hoyle, and I. Y. Tumer, Portland, Oregon.
- IMECE 2013** - Robust Design of North American Power Grid to Mitigate Cascading Failures", J. R. Piacenza, J. J. Fields, Mir Abbas Bozorgirad, C. Hoyle, and I. Y. Tumer, San Diego, California.
- IDETC 2012** - "Lighting Optimization for Sustainable Building Design Considering User Productivity", J. R. Piacenza, I. Y. Tumer, and C. Hoyle, Chicago, Illinois.
- IMECE 2012** - "Power Grid System Design Optimization Considering Renewable Energy Strategies and Environmental Impact", J. R. Piacenza, I. Y. Tumer, C. Hoyle, and J. Fields, 2012, Houston, Texas.
- IMECE 2012** - "Toward an Early-Phase Conceptual System Design Risk-Informed Decision Making Framework," Van Bossuyt, D., Hoyle, C., Tumer, I. Y., Malak, R., Doolen, T., and Dong, A., Houston, Texas. (Presenter Only)
- IMECE 2011** - "Towards a System Analysis and Integration Framework for Early Design Trades in Sustainable Building Design", J. R. Piacenza, I. Y. Tumer, R. Stone, J. Knighton, and I. Elzeyadi, Denver, Colorado.

Technical Poster Presentations

- S. E. Piacenza, T. R. Siegfried, J. R. Piacenza, N. J. Robinson, *Toward a Stereo-Video Measuring Platform Using Unmanned Aerial Vehicles to Remotely Measure Marine Megafauna*. International Sea Turtle Symposium, 2020. Cartagena, Columbia (accepted, but postponed due to COVID-19).
- J. Vidal, J. R. Piacenza, S. E. Piacenza, Investigating Causes of Premature Satellite Tag Detachment in Juvenile Sea Turtles. International Sea Turtle Symposium, 2020. Cartagena, Columbia (accepted, but postponed due to COVID-19).
- M. Letsinger, Z. Maltby, **J. R. Piacenza**, *SAE Baja Design and Manufacturing*. University of West Florida Virtual Student Scholars Symposium, 2020. Pensacola, Florida.
- J. Carlson, J. Clark, G. Ghesquiere, G. Caillouet, L. Lee, B. Simpson, **J. R. Piacenza**, *Sable Palm Frond Skateboard Design and Manufacturing*. University of West Florida Virtual Student Scholars Symposium, 2020. Pensacola, Florida.
- K. Samborski, D. Irschick, N.J. Robinson, **J. R. Piacenza**, C. Zhang, S.E. Piacenza, *Diving into the Fluid Dynamics of Shark Species: A Computational Approach*. University of West Florida Virtual Student Scholars Symposium, 2020. Pensacola, Florida.
- M. Jackson, J. Faller, L. Gomez, B. Regez, **J. R. Piacenza**, *Investigating Cyber-Physical Threats of Numerically Controlled Manufacturing Processes*. University of West Florida Summer Undergraduate Research Program Symposium, 2019. Pensacola, FL.

- S. Corbin, A. Herrmann, N. Valloch, E. Roberto, S. E. Piacenza, **J. R. Piacenza**, B. Taylor, *Energetic Analysis of Tagged Sea Turtles Using Geomagnetic Navigation Modeling*. University of West Florida Student Scholars Symposium, 2019. Pensacola, Florida.
- H. Mixon, M. Teets, S. E. Piacenza, **J. R. Piacenza**, *Modeling and Testing Satellite Tracking Tags on Juvenile Sea Turtles*. University of West Florida Student Scholars Symposium, 2019. Pensacola, Florida.
- B. Kelly, Z. Miles, K. Nguyen, S. Hewitt, SE Piacenza, C. Zhang, **J. R. Piacenza**, *Exploring Design Trades to Extend Useful Life of Platform Terminal Transmitters on Sea Turtles*. University of West Florida Student Scholars Symposium, 2019. Pensacola, Florida.
- P. Maynard, D. Grubbs, D. Perez, C. Hudson, V. Hoang, A. Barring-Harris, **J. R. Piacenza**, *Dog Wheelchair Mobility*. University of West Florida Student Scholars Symposium, 2019. Pensacola, Florida.
- E. Terwilliger, **J. R. Piacenza**, *SAE Baja Design and Manufacturing*. University of West Florida Student Scholars Symposium, 2019. Pensacola, Florida.
- S. E. Piacenza, S. Mayoral, A. Kenney, K. Lugo, **J. R. Piacenza**, *Toward Improving the Performance of Sea Turtle Satellite Tracking Devices Using Additive Manufacturing and Fluid Dynamics Modelling*. International Sea Turtle Symposium, February 2019. Charleston, South Carolina.
- S. Corbin, A. Herrmann, N. Valloch, E. Roberto, S. E. Piacenza, **J. R. Piacenza**, B. Taylor, *Energetic Analysis of Tagged Sea Turtles Using Geomagnetic Navigation Modeling*. International Sea Turtle Symposium, February 2019. Charleston, South Carolina.
- R. Barbosa, J. Guedez, **J. R. Piacenza**, *A Scalable Approach to Designing Cartridge-Type Food Storage for Use in 3D Food Printers*. University of West Florida Summer Undergraduate Research Program Symposium, 2018. Pensacola, FL.
- A. Kenney, N. Shields, S. Piacenza, **J. R. Piacenza**, S. Mayoral, *Designing a Better Juvenile Sea Turtle Tag*. University of West Florida Student Scholars Symposium, 2018. Pensacola, Florida.
- A. Head, **J. R. Piacenza**, *SAE Aero Design and Manufacturing*. University of West Florida Student Scholars Symposium, 2018. Pensacola, Florida.
- D. Brauneis, **J. R. Piacenza**, *SAE Baja Design and Manufacturing*. University of West Florida Student Scholars Symposium, 2018. Pensacola, Florida.
- K. S. Faruqi, B. B. Nguyen, A. Carter, T. Hinz, J. Surmi, L. Robles, Z. Zousel, Johnny Ho, F. Kakish, G. Wagner, **J. R. Piacenza**, *Nitrous Oxide Based Nozzle Cooling in a Hydroxyl-Terminated Polybutadiene Fueled Hybrid Rocket Engine*. Southern California Conference for Undergraduate Research, 2016. Riverside, California.
- M. Patel, S. Moore, T. Nyguyen, M. Cameron, J. Cervantes, K. Shanmugam, **J. R. Piacenza**, *Toward the Experimental Design of a Food Function Database for 3D Printing Technologies*. Southern California Conference for Undergraduate Research, 2016. Riverside, California.
- C. Huab, B. Mongkolpoonsuk, J. Klein, **J. R. Piacenza**, *Chassis Lightweighting for Off-Road Racing Application*. Southern California Conference for Undergraduate Research, 2016. Riverside, California.
- D. J. Ferguson, A. Trujillo, **J. R. Piacenza**, *Suspension System Design and Analysis for Off-road Racing Conditions*. Southern California Conference for Undergraduate Research, 2016. Riverside, California.
- A. Pacheco, A. Guzman, J. Perez, S. Kumamoto, J. Lee, J. Kim, S. Hebbalkar, S. Mayoral, **J. R. Piacenza**, *The Collapsible, Stowable, Tube Launched Unmanned Aerial Transport Vehicle*. Southern California Conference for Undergraduate Research, 2016. Riverside, California.
- A. Guzman, S. Kumamoto, A. Jaquez, S. Mayoral, **J. R. Piacenza**, *Design and Fabrication of a Storage Container for Stowed Unmanned Aerial Vehicles*. Southern California Conference for Undergraduate Research, 2016. Riverside, California.
- R. Hamilton, M. Janbahan, R. Good, M. Guzman, T. Garcia, S. Mayoral, **J. R. Piacenza**, *Scalable Design and Manufacturing of a Closed Cycle Direct Formate Fuel Cell*. Southern California Conference for Undergraduate Research, 2016. Riverside, California.
- D. Argueta, **J. R. Piacenza**, *Automotive Powertrain Design for a Formula SAE Collegiate Racing Vehicle*. Southern California Conference for Undergraduate Research, 2016. Riverside, California.

- N. Corr, S. Mayoral, **J. R. Piacenza**, *Aerodynamic Testing and Validation*. Southern California Conference for Undergraduate Research, 2016. Riverside, California.
- K. Luong, J. Gonzalez, M. Sigler, M. Mejia, C. Garcia, N. Robson, **J. R. Piacenza**, *Hyperloop: SpaceX Conceptual Design*. Southern California Conference for Undergraduate Research, 2015. Claremont, California.
- E. Buenrostro, **J. R. Piacenza**, *Design, Analysis, Building, and Testing of an Off Road Vehicle for the SAE Baja 2016 Collegiate Competition*. Southern California Conference for Undergraduate Research, 2015. Claremont, California.
- W. Walsh, K. Matthys, J. Long, D. Wagner, I. Powell, M. Cox, **J. R. Piacenza**, *Optimization of the Design of a Liquid Fueled, Gas-generated Rocket Engine for LEO/Suborbital Passenger Delivery in the Commercial Marketplace*. Southern California Conference for Undergraduate Research, 2015. Claremont, California.
- A. Bubar, M. Coney, **J. R. Piacenza**, *Mechanical Design of a Multi-Application and Portable-Fixed Wing Aircraft*. Southern California Conference for Undergraduate Research, 2015. Claremont, California.
- I. Bernal, H. Guido, S. Rautus, **J. R. Piacenza**, *A Design of Experiments Approach for Magnetocaloric Refrigeration System Design*. Southern California Conference for Undergraduate Research, 2015. Claremont, California.
- R. Do, I.W. Tak, **J. R. Piacenza**, *Aerodynamic Package for 2016 CSUF Formula SAE*. Southern California Conference for Undergraduate Research, 2015. Claremont, California.
- A. Bogdon, D. Arambula, O. Melgar, **J. R. Piacenza**, *Exploration of Additive Manufacturing Design Strategies for Commercial Food Applications*. Southern California Conference for Undergraduate Research, 2015. Claremont, California.
- M. Torres, **J.R. Piacenza**, *Toward the Design, Manufacturing, and Analysis of a Competitive Off-road Vehicle*. Southern California Conference for Undergraduate Research, 2014. Fullerton, California.
- N. Metchikoff, A. Schauer, G. Witters, **J. R. Piacenza**, *Motorcycle Body Fairing Optimization*. Southern California Conference for Undergraduate Research, 2014. Fullerton, California.
- X. Grooms, D. Harris, E. Hemingway, L. Won, **J. R. Piacenza**, *Toward the Validation of Energy Conservation Strategies in Sustainable Building Design Mandates*. Southern California Conference for Undergraduate Research, 2014. Fullerton, California.
- C. Gibson, T. Gipson, **J. R. Piacenza**, *Advanced Computational Component Analysis for the Optimization of Complex Integrated Systems*. Southern California Conference for Undergraduate Research, 2014. Fullerton, California.
- G. Machin, S. Lin, N. Kays, D. Davis, M. Galban, Y. Gonzalez, L. Gooding, J. Huynh, E. Ibarra, M. Louge, J. Mistry, N. Nguyen, E. Perez, T. Pham, P. Sung, H. Walushka, J. Wang, S. Eriksson, B. Bugert, **J. R. Piacenza**, *Design, Manufacturing, and Analysis on an Unmanned Aerial System*. Southern California Conference for Undergraduate Research, 2014. Fullerton, California.
- B. DuPont, **J. R. Piacenza**, R. Azam, C. Hoyle, E. Cotilla-Sanchez, S. Proper, D. Oryshchyn, S. Bossart, *Decision-Making for Large-Scale Collaborative Power Systems*. Oregon BEST FEST, Poster Session, 2014. Portland, Oregon.
- J. R. Piacenza**, S.H. Seyedmahmoudi, Karl R. Haapala, C. Hoyle, I. Y. Tumer, *Comparison of Sustainability Performance: Cross Laminated Timber Versus Concrete*. Oregon State Graduate Research Expo, Portland, OR. March 2014.
- J. R. Piacenza**, *Failure-Resilient Design of Complex Systems Under Uncertainty*. NSF I/UCRC Center for e-Design Strategic Planning Meeting, 2013. Corvallis, Oregon.
- J. R. Piacenza**, S.H. Seyedmahmoudi, Karl R. Haapala, C. Hoyle, I. Y. Tumer, *Comparison of Sustainability Performance for Cross Laminated Timber and Concrete*. Oregon BEST FEST, Poster Session, 2013. Portland, Oregon.
- J. R. Piacenza**, John Fields, C. Hoyle, I. Y. Tumer, *Quantification of User Preferences for Sustainable Building Design*. Oregon BEST FEST, Poster Session, 2013. Portland, Oregon.
- J. R. Piacenza**, *DARPA FANG Mobility Challenge*. Oregon State University Engineering Expo, 2013. Corvallis, Oregon.

J. R. Piacenza, C. Hoyle, I. Y. Tumer, System Optimization for Sustainable Building Design Considering User Preferences. ASME IDETC/CIE, Computers in Engineering Student Poster Session, 2012. Chicago, Illinois.

J. R. Piacenza, I. Y. Tumer, R. Stone, J. Knighton, I. Elzeyadi, Towards a System Analysis and Integration Framework for Early Design Trades in Sustainable Building Design. ASME IDETC/CIE, Computers in Engineering Student Poster Session, 2011. Washington, D.C.

INVITED PRESENTATIONS:

Engineering Materials Design - UWF, Pensacola, Florida. February 17th, 19th, 2020 "Introduction to Bio-Inspired Design"

Marine Vertebrate Zoology - UWF, Pensacola, Florida. November 3rd, 2017 "Introduction to the Field of Bio-Inspired Design"

Industry Affiliates Board Meeting - CSUF, Fullerton, California. November 4th, 2016 "Center for Collaborative Research and Prototype Development Overview"

Industry Affiliates Board Meeting - CSUF, Fullerton, California. December 11th, 2014 "Senior Design Course Development Overview"

Introduction to Mechanical, Industrial, and Manufacturing Engineering - OSU, Corvallis, Oregon. December 2nd, 2013 "Applications in Complex Systems Research" – *Guest Lecture*

Systems Engineering Consortium Webinar - OSU, Corvallis, Oregon. September 25th, 2013 "Robust Optimization of Complex Cyber-Physical Systems – *Final Presentation*"

Industry Affiliates Board Meeting – OSU, Corvallis, Oregon. May 17th, 2013 "DARPA FANG Mobility Challenge Overview"

Systems Engineering Consortium Webinar - OSU, Corvallis, Oregon. May 16th, 2013 "Robust Optimization of Complex Cyber-Physical Systems – *Interim report*"

Systems Engineering Consortium - University of Alabama in Huntsville, Huntsville, Alabama.

June 20th, 2012 "Reliability and Function Failure Analysis of Complex Cyber-Physical Systems"

Design Area Seminars - OSU, Corvallis, Oregon. October 3rd, 2011 "Integrated Sustainable Building Design"

Industry Affiliates Board Meeting – OSU, Corvallis, Oregon. May 20th, 2011 "Modern Product Design – Paper Folding Machine"

Willamette Valley Rehabilitation Center, Lebanon, Oregon. February 15th, 2011 "Paper Folding Design – Product Delivery"

KEY SERVICE ACTIVITIES

University of West Florida, Pensacola, FL, 08/2017-Present

Department Level

- Collected and analyzed relevant course data for 2018 ABET review (received ABET in 2019)
- Met with ABET Program Evaluators
- Served as Chair of Research Strategic Plan Committee
- Contributed significantly to equipment purchasing
- Advise several Capstone and Enterprise Design student teams
- Acted as a member of the mechanical engineering department search committee, reviewing numerous applications, and participating in phone/in person interviews

College Level

- Hosted SeaGIS representative during measurement science software and hardware training
- Hosted Department of Energy Y-12 National Security Complex representatives during research meetings
- Volunteered for UWF NIH MARC Scholar mentor program
- Presented guest lecture in Marine Vertebrate Zoology titled "Introduction to the Field of Bio-Inspired Design"

- Met with prospective candidates for the new UWF Ph.D. program in Intelligent Systems and Robotics
- Mentored Office of Undergraduate Research “Explorers,” a program designed to expose first and second year student to faculty research activities.
- Created and taught 3-day computer aided design (CAD) and manufacturing course for industry professionals.

University Level

- Key COVID-19 personal protective equipment 3D Printing Task Force member
- Technology Fee Committee member
- Served as key-contributor for the Pensacola Maker Fair Committee
- Advised the UWF Baja and Aero SAE team
- Attended the Fall 2017, Fall/Spring 2018 UWF graduation ceremony
- Reviewed Office of Undergraduate Research Proposals
- Provided interview for the UWF Alumni Magazine
- Travel to multi-day SAE Baja competitions

California State University Fullerton, Fullerton, CA, 08/2014-08/2017

Department Level

- Successfully conceptualized and authored a proposal to establish the Center for Collaborative Research and Prototype Development (CCRPD) in the College of Engineering and Computer Science (ECS) at CSUF
- Acted as a member of the mechanical engineering department search committee, reviewing numerous applications, and participating in phone/in person interviews
- Mentored student for the Brazil Scientific Mobility Program

College Level

- Served on MS thesis committees, and co-administer MS oral examinations
- Hosted the Gene Hass Foundation’s Administrator, providing a broad overview ECS’s activities which would be compatible with the Foundation’s vision of higher education
- Co-presented “Senior Design Course Development Overview” at the ECS 2014 Industry Affiliates Board meeting
- Co-organized the Interim Student Projects Showcase hosted in the Titan Student Union.
- Co-organizing the 2015 and 2016 ECS Student Projects Showcase & Awards

University Level

- Participated in the 1st Annual CSUF STEM Expo in collaboration with the Girl Scouts of Orange County and the CSUF Formula and Baja SAE teams
- Advised the CSUF Formula and Baja SAE teams, and co-advised the CSUF Unmanned Aerial Vehicle (UAV) team
- Attended SAE extracurricular technical clinics with student clubs at Boeing, SpaceX, and Edlebrock
- Served on the *Bachelor of Science in Engineering/Masters of Business Administration* Joint Degree Committee
- Served on the *Masters in Engineering Management (MEM)* Program Committee
- Created three *New Course Proposals* for potential MEM classes including *Modern Product Design*, *Foundations of System Analysis and Design*, and *Decision Based Design*
- Networked with local industry partners to discuss future collaboration opportunities with ECS at the Vision and Visionaries 2015 Dinner
- Served on the CSUF Startup Incubator Selection Committee, and provided ongoing technical support

- Represented the Mechanical Engineering Department at *Fullerton Day*, lab tours and speaking to prospective students
- Attended the CSUF graduation ceremony
- Traveled to multi-day SAE Formula and Baja competitions

HONORS

- Advisor for *SAE Baja*, 2nd place winner at the 2017 CSUF College of Engineering and Computer Science Student Projects Showcase & Awards.
- Advisor for *Titan Rocket Engineering Society*, 2015-2016 Mac Short Award winner, and 3rd place winner at the 2016 CSUF College of Engineering and Computer Science Student Projects Showcase & Awards.
- Advisor for “Best in College” and “Ed Huizinga Innovative Idea Project” award for Formula SAE at the 2015 CSUF College of Engineering and Computer Science Student Projects Showcase & Awards.
- Advisor for 2014-2015 Mac Short Award winner for *Society of Unmanned Aerial Vehicles Engineers* club.
- Advisor for Formula SAE in the 2014 OESA Generation Auto Student Video Contest (1st place).
- Oregon State University Mechanical Engineering Outstanding Graduate Teaching Assistant Award, 2013-2014.
- *DARPA FANG Challenge 1 Finalist*: Lead Oregon State University’s design team for the 2013 FANG Mobility Challenge, finishing 7th (of 252).

ADDITIONAL PROFESSIONAL ACTIVITIES

- Participated in the NSF Design Circle Workshop at Oregon State University, 2018.
- Symposium Chair, Design Theory and Methodology - Design for Manufacturing and Assembly Symposium session at the International Design Engineering Technical Conferences, 2018.
- Session Chair, Design for Manufacturing and the Life Cycle Conference - Design for Manufacturing and Assembly Symposium session at the International Design Engineering Technical Conferences, 2017.
- Session Co-Chair, Design for Manufacturing and the Life Cycle Conference - Design for Manufacturing and Assembly Symposium session at the International Design Engineering Technical Conferences, 2016.
- Regularly review publications for the *Journal of Mechanical Design* and the *Journal of Energy Resources Technology*.
- Regularly review publications for the *International Design Engineering Technical Conference (IDETC/CIE)*, and the *International Mechanical Engineering Conference & Exposition (IMECE)*.
- Engineering consultant for Pacific Northwest College of Art (PCNA) design project, Hotbin Diaper-Composting Vessel, 2013-2014.
- *Design and Mechanics Seminar Series* Coordinator for weekly guest speakers, including both university researchers and related engineering industry partners, 2011-2014.
- Session Co-Chair, Design for Manufacturing and the Life Cycle Conference - Conceptual Design, Manufacturability Analysis, Manufacturing Cost Estimation, and Total Cost of Ownership session at the *International Design Engineering Technical Conferences*, 2013.
- Participated in the 2011-2012 *Biomimicry Student Design Challenge* with the OSU Complex Engineered Systems Design Lab.
- *Professional Affiliation*: American Society of Mechanical Engineers (ASME).
- *Professional Affiliation*: Society of Automotive Engineers (SAE).

TECHNICAL SKILLS & EXPERTISE

- *Key Software:* LaTeX, Overleaf, MS Office, CATIA, Edgecam, SolidWorks, Delmia, MatLAB, ModelCenter, R, StatGraphics, SimaPro, Cura, Ansys
- *Technical Skills:* Finite Element Analysis, Model-Based Design, Robust Design, System Modeling, Risk and Reliability Methods, Computational Fluid Dynamics, Failure Modes and Effects Analysis (FMEA/FMECA), Fault Tree Analysis (FTA), Event Tree Analysis (ETA), Reliability Block Diagrams (RBD), Probabilistic Risk Assessment (PRA), CNC Machining Operations, Additive Manufacturing, Automotive Engine and Transmission Assembly, Welding and Fabrication