


H. Onan Demirel, Ph.D.

Curriculum Vitae

 [School of Mechanical, Industrial and Manufacturing Engineering](#)

 322 Rogers Hall, Oregon State University, Corvallis, OR 97331

 onan.demirel@oregonstate.edu

 +1 (765) 409 9419

 [Faculty Profile](#)

 [Personal Website](#)

 [Research Group Website](#)

 [Google Scholar Profile](#)

 [ResearchGate Profile](#)

 [LinkedIn Profile](#)

AFFILIATION

Assistant Professor of Mechanical Engineering (tenure track) 2016-present

School of Mechanical, Industrial and Manufacturing Engineering
Oregon State University

Doctoral Research and Teaching Assistant 2009-2015

School of Industrial Engineering
Purdue University

Undergraduate Research Assistant 2004-2006

School of Industrial Engineering
Purdue University

My research interests lie at the intersection of human factors engineering, engineering design, and systems engineering. My work focuses on synthesizing and applying theory, principles, methods, and technologies to create and cultivate multi-disciplinary human-centered design theory and methods. I conduct research activities and teach regularly in the following technical areas:

- Human Factors Engineering
- Design Theory and Methods
- Digital Human Modeling
- Human-Centered Design
- Systems Engineering
- Safety Engineering
- Prototyping
- Product Development
- Industrial Design

EDUCATION

Ph.D. in Industrial Engineering Dec. 2015

School of Industrial Engineering
Purdue University

[“Modular Human-in-the-loop Design Framework Based on Human Factors”](#)

Thesis advisor: Vincent G. Duffy, Ph.D.

M.S. in Industrial Engineering Dec. 2009

School of Industrial Engineering
Purdue University

[“Sensory Feedback Mechanism for Virtual Build Methodology”](#)

Thesis advisor: Vincent G. Duffy, Ph.D.

B.S. in Industrial Engineering Dec. 2006

School of Industrial Engineering
Purdue University

[“User Manual and Examples: Tecnomatix Jack 5.0.”](#)

Graduated in Industrial Engineering Honors Program.

Academic / Research advisor: Vincent G. Duffy, Ph.D.

PUBLICATIONS [\[Google Scholar\]](#)

All publications have undergone peer review. DOIs are provided, except the ones marked as “*Under Review*”. Typically, students are listed first, in descending order of their contributions, and the advisors are listed last.

- The asterisk (*) denotes Dr. Demirel’s graduate and undergraduate students as co-authors.

Refereed Journal Publications (*Under Review*)

- UR-J2. Kamolnat Tabattanon*, **H. Onan Demirel**, and Kate M. Hunter-Zaworski. “Investigation of User Needs through Digital Human Modeling for Design for Accessibility”. In: *Ergonomics* (2023).
- UR-J1. Jianfu Zhang* and **H. Onan Demirel**. “Early-Stage Virtual Design Assessment Framework for Proactive Human Factors Engineering”. In: *Applied Ergonomics* (2023).




Refereed Journal Publications (*Published*)

- J20. Alexandra Barnaby-Brown, Molly H. Goldstein, John Z. Clay, **H. Onan Demirel**, Xingang Li, and Zhenghui Sha. “A Study on Generative Design Reasoning and Students Divergent and Convergent Thinking”. In: *Journal of Mechanical Design* (In Press).
- J19. **H. Onan Demirel**, Molly H. Goldstein, Xingang Li, and Zhenghui Sha. “Human-Centered Generative Design Framework: An Early Design Framework to Support Concept Creation and Evaluation”. In: *International Journal of Human-Computer Interaction* (2023), pp. 1–12.
 [10.1080/10447318.2023.2171489](https://doi.org/10.1080/10447318.2023.2171489)
- J18. Karina A. Roundtree*, Jason R. Cody, Jennifer Leaf, **H. Onan Demirel**, and Julie A. Adams. “Transparencys Influence on Human-collective Interactions”. In: *ACM Transactions on Human-Robot Interaction (THRI)* 11.2 (2022), pp. 1–48.
 [10.1145/3507470](https://doi.org/10.1145/3507470)
- J17. Nicolás F. Soria Zurita*, Melissa Anne Tensa, Vincenzo Ferrero, Robert B. Stone, Bryony DuPont, **H. Onan Demirel**, and Irem Y. Tumer. “Uncovering Human Errors Associated With System-User Interactions Using Functional Modeling”. In: *Journal of Mechanical Design* 144.8 (2022), p. 081401.
 [10.1115/1.4054241](https://doi.org/10.1115/1.4054241)
- J16. Salman Ahmed*, Lukman Irshad*, and **H. Onan Demirel**. “Prototyping Human-Centered Products in the Age of Industry 4.0”. In: *Journal of Mechanical Design* 143.7 (2021).
 [10.1115/1.4050736](https://doi.org/10.1115/1.4050736)
- J15. Salman Ahmed*, Lukman Irshad*, Mihir Sunil Gawand*, and **H. Onan Demirel**. “Integrating human factors early in the design process using digital human modelling and surrogate modelling”. In: *Journal of Engineering Design* 32.4 (2021), pp. 165–186.
 [10.1080/09544828.2020.1869704](https://doi.org/10.1080/09544828.2020.1869704)
- J14. **H. Onan Demirel**, Salman Ahmed*, and Vincent G. Duffy. “Digital Human Modeling: A Review and Reappraisal of Origins, Present, and Expected Future Methods for Representing Humans Computationally”. In: *International Journal of HumanComputer Interaction* 0.0 (2021), pp. 1–41.
 [10.1080/10447318.2021.1976507](https://doi.org/10.1080/10447318.2021.1976507)
- J13. Lukman Irshad*, Daniel Hulse, **H. Onan Demirel**, Irem Y. Tumer, and David C. Jensen. “Quantifying the Combined Effects of Human Errors and Component Failures”. In: *Journal of Mechanical Design* 143.10 (2021).
 [10.1115/1.4050402](https://doi.org/10.1115/1.4050402)
- J12. **H. Onan Demirel**, Lukman Irshad*, Salman Ahmed*, and Irem Y. Tumer. “Digital Twin-Driven Human-Centered Design Frameworks for Meeting Sustainability Objectives”. In: *Journal of Computing and Information Science in Engineering* 21.3 (2021).
 [10.1115/1.4050684](https://doi.org/10.1115/1.4050684)

- J11. Karina A Roundtree*, Jason R Cody, Jennifer Leaf, **H Onan Demirel**, and Julie A Adams. “Human-collective visualization transparency”. In: *Swarm Intelligence* (2021), pp. 1–50.
 doi [10.1007/s11721-021-00194-6](https://doi.org/10.1007/s11721-021-00194-6).
- J10. Salman Ahmed* and **H. Onan Demirel**. “A Framework to Assess Human Performance in Normal and Emergency Situations”. In: *ASCE-ASME J Risk and Uncert in Engrg Sys Part B Mech Engrg* 6.1 (2020).
 doi [10.1115/1.4044791](https://doi.org/10.1115/1.4044791).
- J9. Lukman Irshad*, **H. Onan Demirel**, and Irem Y. Tumer. “Automated Generation of Fault Scenarios to Assess Potential Human Errors and Functional Failures in Early Design Stages”. In: *Journal of Computing and Information Science in Engineering* 20.5 (2020).
 doi [10.1115/1.4047557](https://doi.org/10.1115/1.4047557).
- J8. Lukman Irshad*, **H. Onan Demirel**, Irem Y. Tumer, and Guillaume Brat. “Using Rio-Paris Flight 447 Crash to Assess Human Error and Failure Propagation Analysis Early in Design”. In: *ASCE-ASME J Risk and Uncert in Engrg Sys Part B Mech Engrg* 6.1 (2020).
 doi [10.1115/1.4044790](https://doi.org/10.1115/1.4044790).
- J7. Nicolás F. Soria Zurita*, Robert B. Stone, **H. Onan Demirel**, and Irem Y. Tumer. “Identification of HumanSystem Interaction Errors During Early Design Stages Using a Functional Basis Framework”. In: *ASCE-ASME J Risk and Uncert in Engrg Sys Part B Mech Engrg* 6.1 (2020).
 doi [10.1115/1.4044787](https://doi.org/10.1115/1.4044787).
- J6. Lukman Irshad*, Salman Ahmed*, **H. Onan Demirel**, and Irem Y. Tumer. “Computational Functional Failure Analysis to Identify Human Errors During Early Design Stages”. In: *Journal of Computing and Information Science in Engineering* 19.3 (2019).
 doi [10.1115/1.4042697](https://doi.org/10.1115/1.4042697).
- J5. Aditya Gune, Raffaele De Amicis, Bruno Simões, Christopher A. Sanchez, and **H. Onan Demirel**. “Graphically Hearing: Enhancing Understanding of Geospatial Data through an Integrated Auditory and Visual Experience”. In: *IEEE Computer Graphics and Applications* 38.4 (2018), pp. 18–26.
 doi [10.1109/MCG.2018.042731655](https://doi.org/10.1109/MCG.2018.042731655).
- J4. **H. Onan Demirel** and Vincent G. Duffy. “Incorporating Tactile Cues into Human-Centered Virtual Product Design”. In: *Human Factors and Ergonomics in Manufacturing & Service Industries* 27.1 (2017), pp. 5–16.
 doi [10.1002/hfm.20402](https://doi.org/10.1002/hfm.20402).
- J3. **H. Onan Demirel** and Vincent G Duffy. “Building quality into design process through digital human modelling”. In: *International Journal of the Digital Human* 1.2 (2016), pp. 153–168.
 doi [10.1504/IJDH.2016.077415](https://doi.org/10.1504/IJDH.2016.077415).
- J2. **H. Onan Demirel**, Le Zhang, and Vincent G. Duffy. “Opportunities for meeting sustainability objectives”. In: *International Journal of Industrial Ergonomics* 51 (2016), pp. 73–81.
 doi [10.1016/j.ergon.2014.09.009](https://doi.org/10.1016/j.ergon.2014.09.009).
- J1. Le Zhang, Hangjun Tong, **H. Onan Demirel**, Vincent G. Duffy, Yuehwern Yih, and Balmatee Bidassie. “A Practical Model of Value Co-creation in Healthcare Service”. In: *Procedia Manufacturing* 3 (2015), pp. 200–207.
 doi [10.1016/j.promfg.2015.07.129](https://doi.org/10.1016/j.promfg.2015.07.129).

Books and Book Chapters (*Published*)

- BC4. Roatchanatham Anattasakul*, Tim Slama*, and **H. Onan Demirel**. “Digital Co-Creation: An Early-Stage Product Individualization Framework to Bridge the Customer-Designer Void”. In: *Digital Human Modeling and Medicine*. Ed. by Gunther Paul and Mohamed H. Doweidar. Elsevier, 2023, pp. 659–677.
 doi [10.1016/B978-0-12-823913-1.00022-1](https://doi.org/10.1016/B978-0-12-823913-1.00022-1).

- BC3. Mihir S. Gawand* and **H. Onan Demirel**. “Task Simulation Automation via Digital Human Models: A Case Study on Cockpit Fire and Smoke Emergencies”. In: *Human-Automation Interaction*. Ed. by Vincent G. Duffy. Springer, 2022, pp. 345–362.
 doi [10.1007/978-3-031-10784-9_21](https://doi.org/10.1007/978-3-031-10784-9_21) 
- BC2. **H. Onan Demirel**. “Software and demonstration Materials – User Manual and Examples: Tecnomatix Jack 5.0”. In: *The Handbook of Digital Human Modeling Research for Applied Ergonomics and Human Factors Engineering*. Ed. by Vincent G. Duffy. CRC Press, 2008.
 doi [10.1201/9781420063523](https://doi.org/10.1201/9781420063523) 
- BC1. **H. Onan Demirel*** and Vincent G. Duffy. “Appendix D: Ergonomics Software Sources”. In: *Occupational Ergonomics: Theory and Applications*. Ed. by A. Bhattacharya and J. D. McGlothlin. CRC Press, 2008, pp. 1245–1248.
 doi [10.1201/b11717](https://doi.org/10.1201/b11717) 

Refereed Conference Publications (*Under Review*)

- UR-C2. John Z. Clay, Xingang Li, **H. Onan Demirel**, Molly H. Goldstein, Darya L. Zabelina, Charles Xie, and Zhenghui Sha. “Towards Generative Design Thinking: A Systematic Review of Engineering Design Thinking”. In: *American Society For Engineering Education Annual Conference*. 2024.
- UR-C1. Gabrielle B. Joffe* and **H. Onan Demirel**. “The Use of Digital Human Modeling to Assess Vision Obstruction in Airport Taxi Operations”. In: *International Conference on Human-Computer Interaction*. 2024.

Refereed Conference Publications (*Published*)

- C35. John Z. Clay, Xingang Li, Rundong Jiang, **H. Onan Demirel**, Molly H. Goldstein, Darya L. Zabelina, Charles Xie, and Zhenghui Sha. “Thinking Inversely in Engineering Design: Towards an Operational Definition of Generative Design Thinking”. In: *American Society For Engineering Education Annual Conference*. 2023.
 EPRINT: <https://peer.asee.org/42724> 
- C34. Jordan A. Henstrom, Raffaele De Amicis, Christopher A. Sanchez, and **H. Onan Demirel**. “VR Technical Drawing Learning Activity for College Engineering Students: Design, Development and Evaluation”. In: *Proceedings of the Third International Conference on Design Tools and Methods in Industrial Engineering, ADM2023 International Conference*. 2023.
 EPRINT: <https://link.springer.com/book/9783031520747> 
- C33. **H. Onan Demirel**, Alex Jennings*, and Sriram Srinivasan*. “An Early Design Method to Quantify Vision Obstruction: Formula One (F1) Halo Case Study”. In: *International Conference on Human-Computer Interaction*. Springer. 2022, pp. 32–44.
 doi [10.1007/978-3-031-05890-5_3](https://doi.org/10.1007/978-3-031-05890-5_3) 
- C32. **H. Onan Demirel** and Sriram Srinivasan*. “A Proactive Ergonomics Framework to Assess A-Pillar Vision Obstruction”. In: *Digital Human Modeling and Applied Optimization*. International Conference on Applied Human Factors and Ergonomics. 2022, pp. 16–24.
 doi [10.54941/ahfe1001895](https://doi.org/10.54941/ahfe1001895) 
- C31. **H. Onan Demirel** and Sriram Srinivasan*. “Quantifying vision obstruction of Formula One (F1) halo concept variants”. In: *Proceedings of the 7th International Digital Human Modeling Symposium (DHM 2022) and Iowa Virtual Human Summit 2022*. Vol. 7. 1. University of Iowa. 2022.
 doi [10.17077/dhm.31755](https://doi.org/10.17077/dhm.31755) 

- C30. Sriram Srinivasan* and **H Onan Demirel**. “Quantifying Vision Obscuration of A-Pillar Concept Variants Using Digital Human Modeling”. In: *International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*. Vol. 86212. American Society of Mechanical Engineers. 2022, V002T02A049.
 doi [10.1115/DETC2022-89781](https://doi.org/10.1115/DETC2022-89781) 
- C29. Salman Ahmed* and **H. Onan Demirel**. “A Prototyping Framework for Human-Centered Product Design: Preliminary Validation Study”. In: *Design, User Experience, and Usability: UX Research and Design. HCII 2021. Lecture Notes in Computer Science*. Ed. by Marcelo M. Soares, Elizabeth Rosenzweig, and Aaron Marcus. Vol. 12779. 2021, pp. 3–14.
 doi [10.1007/978-3-030-78221-4_1](https://doi.org/10.1007/978-3-030-78221-4_1) 
- C28. **H. Onan Demirel**, Lukman Irshad*, Salman Ahmed*, and Irem Y. Tumer. “Digital Human-in-the-Loop Methodology for Early Design Computational Human Factors”. In: *Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management. Human Body, Motion and Behavior. HCII 2021*. Ed. by Vincent G. Duffy. Vol. 12777. 2021, pp. 14–31.
 doi [10.1007/978-3-030-77817-0_2](https://doi.org/10.1007/978-3-030-77817-0_2) 
- C27. Molly H. Goldstein, James Sommer, Natascha Trellinger Buswell, Xingang Li, Zhenghui Sha, and **H. Onan Demirel**. “Uncovering Generative Design Rationale in the Undergraduate Classroom”. In: *2021 IEEE Frontiers in Education Conference (FIE)*. IEEE. 2021, pp. 1–6.
 doi [10.1109/FIE49875.2021.9637365](https://doi.org/10.1109/FIE49875.2021.9637365) 
- C26. Lukman Irshad*, **H. Onan Demirel**, and Irem Y. Tumer. “The Human Error and Functional Failure Reasoning Framework: How Does It Scale?” In: *41st Computers and Information in Engineering Conference (CIE)*. 2021.
 doi [10.1115/DETC2021-71839](https://doi.org/10.1115/DETC2021-71839) 
- C25. Xingang Li, **H. Onan Demirel**, Molly H. Goldstein, and Zhenghui Sha. “Exploring Generative Design Thinking for Engineering Design and Design Education”. In: *2021 ASEE Midwest Section Conference*. 2021.
 doi [10.18260/1-2-1125.1153-38349](https://doi.org/10.18260/1-2-1125.1153-38349) 
- C24. Salman Ahmed* and **H. Onan Demirel**. “A Conceptual Prototyping Framework for Integrating Human Factors Early in Product Design”. In: *Design, Systems, and Complexity*. Vol. 6. ASME International Mechanical Engineering Congress and Exposition. 2020.
 doi [10.1115/IMECE2020-23858](https://doi.org/10.1115/IMECE2020-23858) 
- C23. Salman Ahmed* and **H. Onan Demirel**. “A Pre-Prototyping Framework to Explore Human-Centered Prototyping Strategies During Early Design”. In: *32nd International Conference on Design Theory and Methodology (DTM)*. Vol. 8. International Design Engineering Technical Conferences and Computers and Information in Engineering Conference. 2020.
 doi [10.1115/DETC2020-22700](https://doi.org/10.1115/DETC2020-22700) 
- C22. Salman Ahmed* and **H. Onan Demirel**. “House of Prototyping Guidelines: A Framework to Develop Theoretical Prototyping Strategies for Human-Centered Design”. In: *Design, User Experience, and Usability. Interaction Design. HCII 2020. Lecture Notes in Computer Science*. Ed. by Aaron Marcus and Elizabeth Rosenzweig. Vol. 12200. 2020, pp. 21–38.
 doi [978-3-030-49713-2](https://doi.org/10.1007/978-3-030-49713-2) 
- C21. **H. Onan Demirel**. “Digital Human-in-the-Loop Framework”. In: *Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management. Posture, Motion and Health. HCII 2020. Lecture Notes in Computer Science*. Ed. by Vincent G. Duffy. Vol. 12198. 2020, pp. 18–32.
 doi [10.1007/978-3-030-49904-4_2](https://doi.org/10.1007/978-3-030-49904-4_2) 
- C20. Mihir Sunil Gawand* and **H. Onan Demirel**. “A Design Framework to Automate Task Simulation and Ergonomic Analysis in Digital Human Modeling”. In: *Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management. Posture, Motion and Health. HCII 2020. Lecture Notes in Computer Science*. Ed. by Vincent G. Duffy. Vol. 12198. 2020, pp. 50–66.
 doi [10.1007/978-3-030-49904-4_4](https://doi.org/10.1007/978-3-030-49904-4_4) 

- C19. Mihir Sunil Gawand* and **H. Onan Demirel**. “Extending the Capabilities of Digital Human Modeling: A Design Framework to Assess Emergencies Early in Design”. In: *Design, Systems, and Complexity*. Vol. 6. ASME International Mechanical Engineering Congress and Exposition. 2020.
 [10.1115/IMECE2020-24457](https://doi.org/10.1115/IMECE2020-24457) .
- C18. Lukman Irshad*, Daniel Hulse, **H. Onan Demirel**, Irem Y. Tumer, and David C. Jensen. “Introducing Likelihood of Occurrence and Expected Cost to Human Error and Functional Failure Reasoning Framework”. In: *32nd International Conference on Design Theory and Methodology (DTM)*. Vol. 8. International Design Engineering Technical Conferences and Computers and Information in Engineering Conference. 2020.
 [10.1115/DETC2020-22406](https://doi.org/10.1115/DETC2020-22406) .
- C17. Salman Ahmed*, Lukman Irshad*, and **H. Onan Demirel**. “Computational Prototyping Methods to Design Human Centered Products of High and Low Level Human Interactions”. In: *31st International Conference on Design Theory and Methodology*. Vol. 7. International Design Engineering Technical Conferences and Computers and Information in Engineering Conference. 2019.
 [10.1115/DETC2019-98450](https://doi.org/10.1115/DETC2019-98450) .
- C16. Salman Ahmed*, Lukman Irshad*, **H. Onan Demirel**, and Irem Y. Tumer. “A Comparison Between Virtual Reality and Digital Human Modeling for Proactive Ergonomic Design”. In: *Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management. Human Body and Motion. HCII 2019. Lecture Notes in Computer Science*. Ed. by Vincent G. Duffy. Vol. 11581. 2019, pp. 3–21.
 [10.1007/978-3-030-22216-1_1](https://doi.org/10.1007/978-3-030-22216-1_1) .
- C15. Lukman Irshad*, Salman Ahmed*, **H. Onan Demirel**, and Irem Y. Tumer. “Coupling Digital Human Modeling with Early Design Stage Human Error Analysis to Assess Ergonomic Vulnerabilities”. In: *AIAA Scitech 2019 Forum*. 2019.
 [10.2514/6.2019-2349](https://doi.org/10.2514/6.2019-2349) .
- C14. Lukman Irshad*, **H. Onan Demirel**, and Irem Y. Tumer. “Using Automated Use Case Generation for Early Design Stage Functional Failure and Human Error Analysis”. In: *39th Computers and Information in Engineering Conference*. Vol. 1. International Design Engineering Technical Conferences and Computers and Information in Engineering Conference. 2019.
 [10.1115/DETC2019-98466](https://doi.org/10.1115/DETC2019-98466) .
- C13. Karina A. Roundtree*, Jason R. Cody, Jennifer Leaf, **H. Onan Demirel**, and Julie A. Adams. “Visualization Design for Human-Collective Teams”. In: *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*. Vol. 63. 1. 2019, pp. 417–421.
 [10.1177/1071181319631028](https://doi.org/10.1177/1071181319631028) .
- C12. Nicolás F. Soria Zurita*, Melissa Anne Tensa, Vincenzo Ferrero, Robert B. Stone, Bryony DuPont, **H. Onan Demirel**, and Irem Y. Tumer. “An Association Rule Approach for Identifying Physical System-User Interactions and Potential Human Errors Using a Design Repository”. In: *31st International Conference on Design Theory and Methodology*. Vol. 7. International Design Engineering Technical Conferences and Computers and Information in Engineering Conference. 2019.
 [10.1115/DETC2019-98424](https://doi.org/10.1115/DETC2019-98424) .
- C11. Salman Ahmed*, **H. Onan Demirel**, Irem Y. Tumer, and Robert B. Stone. “Towards human-induced failure assessment during early design”. In: *Tools and Methods of Competitive Engineering (TMCE 2018)*. 2018, pp. 507–520.
 EPRINT: <https://tmce.io.tudelft.nl/pages/proceedings/2018.pdf> .
- C10. Salman Ahmed*, Mihir Sunil Gawand*, Lukman Irshad*, and **H. Onan Demirel**. “Exploring the Design Space Using a Surrogate Model Approach With Digital Human Modeling Simulations”. In: *38th Computers and Information in Engineering Conference*. Vol. 1B. International Design Engineering Technical Conferences and Computers and Information in Engineering Conference. 2018.
 [10.1115/DETC2018-86323](https://doi.org/10.1115/DETC2018-86323) .

- C9. Salman Ahmed*, Jianfu Zhang*, and **H. Onan Demirel**. “Assessment of Types of Prototyping in Human-Centered Product Design”. In: *Digital Human Modeling. Applications in Health, Safety, Ergonomics, and Risk Management. DHM 2018. Lecture Notes in Computer Science*. Vol. 10917. 2018, pp. 3–18.
 doi [10.1007/978-3-319-91397-1_1](https://doi.org/10.1007/978-3-319-91397-1_1)
- C8. Lukman Irshad*, Salman Ahmed*, **Onan Demirel**, and Irem Y. Tumer. “Identification of Human Errors During Early Design Stage Functional Failure Analysis”. In: *38th Computers and Information in Engineering Conference*. Vol. 1B. International Design Engineering Technical Conferences and Computers and Information in Engineering Conference. 2018.
 doi [10.1115/DETC2018-85979](https://doi.org/10.1115/DETC2018-85979)
- C7. Nicolás F. Soria Zurita*, Robert B. Stone, **Onan Demirel**, and Irem Y. Tumer. “The Function-Human Error Design Method (FHEDM)”. In: *30th International Conference on Design Theory and Methodology*. Vol. 7. International Design Engineering Technical Conferences and Computers and Information in Engineering Conference. 2018.
 doi [10.1115/detc2018-85327](https://doi.org/10.1115/detc2018-85327)
- C6. **H. Onan Demirel** and Vincent G. Duffy. “A Sustainable Human Centered Design Framework Based on Human Factors”. In: *Digital Human Modeling and Applications in Health, Safety, Ergonomics, and Risk Management. Healthcare and Safety of the Environment and Transport. DHM 2013. Lecture Notes in Computer Science*. Ed. by Vincent G. Duffy. Vol. 8025. 2013, pp. 307–315.
 doi [10.1007/978-3-642-39173-6_36](https://doi.org/10.1007/978-3-642-39173-6_36)
- C5. **H. Onan Demirel** and Vincent G. Duffy. “Impact of Force Feedback on Computer Aided Ergonomic Analyses”. In: *Digital Human Modeling. ICDHM 2009. Lecture Notes in Computer Science*. Ed. by V. G. Duffy. Vol. 5620. 2009, pp. 608–613.
 doi [10.1007/978-3-642-02809-0_64](https://doi.org/10.1007/978-3-642-02809-0_64)
- C4. **H. Onan Demirel**, Vishal Balchandani, Nathan V. Hartman, Andrew Lowe, Huzaifa Razali, and Vincent G. Duffy. “Proof of Concept for Test of Virtual Assembly Cell with High Product Complexity”. In: *International Conference on Applied Human Factors and Ergonomics (AHFE)*. Ed. by Waldamer Karwowski and Gavriel Salvendy. 2008.
- C3. **H. Onan Demirel** and Vincent G. Duffy. “RFID for Medical Implant Monitoring and Positive Patient Identification”. In: *International Conference on Applied Human Factors and Ergonomics (AHFE)*. Ed. by Waldamer Karwowski and Gavriel Salvendy. 2008.
- C2. **H. Onan Demirel** and Vincent G. Duffy. “Applications of Digital Human Modeling in Industry”. In: *Digital Human Modeling. ICDHM 2007. Lecture Notes in Computer Science*. Ed. by Vincent G. Duffy. Vol. 4561. 2007, pp. 824–832.
 doi [10.1007/978-3-540-73321-8_93](https://doi.org/10.1007/978-3-540-73321-8_93)
- C1. **H. Onan Demirel** and Vincent G. Duffy. “Digital Human Modeling for Product Lifecycle Management”. In: *Digital Human Modeling. ICDHM 2007. Lecture Notes in Computer Science*. Ed. by Vincent G. Duffy. Vol. 4561. 2007, pp. 372–381.
 doi [10.1007/978-3-540-73321-8_43](https://doi.org/10.1007/978-3-540-73321-8_43)

PRESENTATIONS AND TALKS

- T21. H. Onan Demirel, “*Prototyping Framework for Human-Centered Product Design: Preliminary Validation Study*”, International Conference on Human-Computer Interaction Washington, DC (remote) – July, 2021
- T20. H. Onan Demirel, “*Digital Human-in-the-Loop Framework*”, International Conference on Human-Computer Interaction Copenhagen, Denmark (remote) – July, 2020
- T19. H. Onan Demirel, “*Digital Human-in-the-Loop Methodology for Early Design Computational Human Factors*”, International Conference on Human-Computer Interaction Copenhagen, Denmark (remote) – July, 2020

- T18. H. Onan Demirel, “*Proactive Ergonomics Using Virtual Reality and Comparison with Digital Human Modeling*”, International Conference on Human-Computer Interaction Orlando, FL – July, 2019
- T17. H. Onan Demirel, “*Coupling Digital Human Modeling with Early Design Stage Human Error Analysis to Assess Ergonomic Vulnerabilities*”, AIAA Information Systems Aerospace Systems Info-Tech San Diego, CA – January, 2019
- T16. H. Onan Demirel, “*Assessment of Types of Prototyping in Human Centered Product Design*”, Human-Computer Interaction International Conference Las Vegas, NV – July, 2019
- T15. H. Onan Demirel, “*Human-in-the-loop Design Framework*”, NSF Design Workshop - Designing and Developing Global Engineering Systems Oregon State University, Corvallis, OR – March, 2018
- T14. H. Onan Demirel, “*Towards human-induced failure assessment during early design*”, International Symposium on tools and methods of competitive engineer Canary Islands, Spain – March, 2018
- T13. H. Onan Demirel, “*OSU Expertise: Engineering Design and Innovation*”, Autodesk Manufacturing Team meeting Portland, OR – April, 2017
- T12. H. Onan Demirel, “*OSU Expertise: Engineering Design and Innovation*”, Adidas Design Team meeting Portland, OR – January, 2017
- T11. H. Onan Demirel, “*Human-in-the-loop Design Framework*”, Oregon State University Industry Advisory Board Meeting Portland, OR – January, 2017
- T10. H. Onan Demirel, “*Human-in-the-loop Design Framework*”, NIKE Sustainability Group meeting Corvallis, OR – March, 2016
- T9. H. Onan Demirel, “*Human-in-the-loop Design Framework*”, Columbia Sportswear Technical Team meeting Corvallis, OR – February, 2016
- T8. H. Onan Demirel, “*Human-in-the-loop Design Framework*”, Graduate Design Seminar Oregon State University, Corvallis, OR – January, 2016
- T7. H. Onan Demirel, “*Value co-creation in healthcare service systems*”, International Conference on Applied Human Factors and Ergonomics Las Vegas, NV – January, 2015
- T6. H. Onan Demirel, “*Digital Human Modeling for product design and development*”, Whirlpool Co. Benton Harbor, MI – June, 2010
- T5. H. Onan Demirel, “*Impact of Force Feedback on Computer Aided Ergonomic Analyses*”, International Conference on Human-Computer Interaction San Diego, CA – July, 2009
- T4. H. Onan Demirel, “*RDIF for Medical Implant Monitoring*”, International Conference on Applied Human Factors and Ergonomics Las Vegas, NV – June, 2008
- T3. H. Onan Demirel, “*Proof of concept for test of virtual assembly cell with high product complexity*”, International Conference on Applied Human Factors and Ergonomics Las Vegas, NV – June, 2008
- T2. H. Onan Demirel, “*Applications of Digital Human Modeling in Industry*”, International Conference on Digital Human Modeling Beijing, China – July, 2007
- T1. H. Onan Demirel, “*Digital human modeling for product life-cycle management*”, International Conference on Digital Human Modeling Beijing, China – July, 2007

FUNDING

- “Educating Designers for Generative Engineering (EDGE)”, National Science Foundation (NSF), **\$2,180,320** – (10/2021 – 09/24) – Role: Co-PI.
- “Effective training of manufacturing and assembly via enhanced cyber training systems.”, The Oregon Manufacturing Innovation Center, Research & Development (OMIC), **\$99,804** – (08/20 – 06/21) – Role: Co-PI.
- “Swarms, Colonies, and Human Organizations: Towards a Science of Managed Bio-Inspired Collectives”, Office of Naval Research (ONR), **\$217,124** – (08/20 – 09/21) – Role: Co-PI.
- “Identification and Validation of Human Errors in Large-Scale Complex Systems”, National Aeronautics and Space Administration (NASA), **\$150,000** – (07/18 – 07/20) – Role: PI.
- “Verification and Validation of Human-Centric Operations in Large Scale Systems”, National Aeronautics and Space Administration (NASA), **\$40,000** – (9/17 – 9/18) – Role: PI.
- “A transformative study on the effectiveness of Extended Reality enhancing engineering education”, Oregon State University, **\$25,000** – (09/20 – 09/21) – Role: Co-PI.
- “D-HUB: Collaborative design studio space, a cross-disciplinary computational design-build-test (DBT) environment for human-centered product and process innovation at Oregon State University”, Oregon State University, **\$99,950** – (06/18 - 06/20) – Role: PI.
- “Computational Ergonomics Assessment of Laparoscopy Surgical Procedures”, Oregon State University (OSU) School of Mechanical, Industrial and Manufacturing Engineering (MIME) Strategic Excellence Initiative for Undergraduate Research Experience, **\$5,000** – (02/18 – 06/18) – Role: Co-PI.
- “Oregon State University (OSU) School of Mechanical, Industrial and Manufacturing Engineering (MIME) for Faculty Travel”, 2019 The American Institute of Aeronautics and Astronautics InfoTech meeting, **\$1,000** – (12/18) – Role: PI.
- “Bridging Industrial Design and Mechanical Engineering ”, Oregon State University, **\$10,000** – (12/18 – 12/19) – Role: PI.
- “Digital Co-Creation: An Early Stage Product Personalization Methodology to Bridge the User-Designer Void”, Oregon State University (OSU) School of Mechanical, Industrial and Manufacturing Engineering (MIME) Strategic Excellence Initiative for Undergraduate Research Experience, **\$5,000** – (04/19 – 07/19) – Role: Co-PI.
- “Dearborn Wing Upgrade and Computational Design Equipment Purchase”, Oregon State University (OSU) School of Mechanical, Industrial and Manufacturing Engineering (MIME) for Instructional and Research Equipment, **\$6,500** – (11/17) – Role: PI.
- “Oregon State University (OSU) School of Mechanical, Industrial and Manufacturing Engineering (MIME) for Faculty Travel”, 2018 Human Computer Interaction International Meeting, **\$1,000** – (11/17) – Role: PI.

ADVISING

Ph.D. Students:

	Date of Graduation
5. Mohammadamin Firouzi Thesis Title: TBD	09/2025
4. Lukman Irshad (<i>Co-advised with Dr. Irem Y. Tumer</i>) Thesis Title: A Framework to Evaluate the Risk of Human- and Component-related Vulnerability Interactions ²	09/2021

3. Salman Ahmed 06/2021
Thesis title: [A Methodology to Design Pre-Prototyping Strategies for Human-Centered Product/Workplace during Conceptual Design Process](#)
2. Karina A. Roundtree (*Co-advised with Dr. Julie A. Adams*) 08/2020
Thesis Title: [Achieving Transparency in Human-Collective Systems](#)
1. Nicolas Soria Zurita (*Co-advised with Dr. Irem Y. Tumer*) 06/2019
Thesis Title: [The Function-Human Error Design Method \(FHEDM\)](#)

M.S. Students:

7. Yitong Bu (*Co-advised with Dr. Javier Calvo-Amodio*) 06/2024
Thesis Title: TBD
6. Sriram Srinivasan 09/2022
Thesis Title: [Early Design Evaluation of See-Through Automotive A-pillar Concepts Using Digital Human Modeling and Mixed Reality Techniques](#)
5. Taylor R. P. Mellon 09/2021
Thesis Title: [Using Digital Human Modeling to Evaluate and Improve Car Pillar Design: A Proof of Concept and Design of Experiments](#)
4. MihirSunil Gawand 09/2019
Thesis Title: [Automating Digital Human Modeling for Task Simulation and Ergonomic Evaluation to Consider Emergency Ergonomics Early in Design](#)
3. Kamolnat Tabattanon (*Co-advised with Dr. Katharine M. Hunter-Zaworski*) 05/2018
Thesis Title: [Design of an Accessible Sleeper Compartment for Next Generation Passenger Rail: Investigation of User Needs and Application of Human Factors through Digital Human Modeling](#)
2. Alex Jennings 03/2018
Thesis Title: [Percent Area Visual Obscuration of F1 Racecar Canopies](#)
1. Jianfu Zhang 03/2018
Thesis Title: [Exploration of the Integration of Markerless Motion Capture and Virtual Reality for Ergonomics Assessment of Products in Early Design](#)

Undergraduate Students:

	Dates
11. Po-Yen Huang	03/2023 - present
10. Gabrielle Joffe	09/2022 - present
9. Annie Rachel Thomas	10/2019 - 05/2021
8. Timothy James Slama	06/2017 - 06/2019
7. William R. Chick	01/2019 - 03/2019
6. Valerie Rose Byxbe	04/2016 - 06/2018
5. Mason Eragor	04/2016 - 03/2017
4. Gabriel Kemling	04/2016 - 03/2017
3. Yiqui Lui	09/2017 - 11/2017
2. Joseph Unfred	04/2016 - 12/2016
1. Timothy Edward Wellette	04/2016 - 10/2016

Graduate Thesis or Project Committees:

15. Samantha Kang, Ph.D. in Mechanical Engineering	2026 (expected)
14. Vignesh Bhaskaran, Ph.D. in Mechanical Engineering	2026 (expected)
13. Kiernan Kilkenny, M.S. in Mechanical Engineering	2024 (expected)
12. Myles Robinson, M.S. in Mechanical Engineering	2023
11. Chengda Li, M.S. in Mechanical Engineering	2023

10. Taewan Lee, Ph.D. in Mechanical Engineering	2022
9. Ryan Racel Quick, M.S. in Mechanical Engineering	2022
8. Dogan Yirmibesoglu, Ph.D. in Robotics and Mechanical Engineering	2020
7. Mohammed Hossein Pakravanmobarakeh, Ph.D. in Mechanical Engineering	2019
6. Gaofeng Bai, M.S. in Mechanical Engineering	2019
5. Trung Bao Pham, Ph.D. in Mechanical Engineering	2019
4. Weifeng Huang, Ph.D. in Mechanical Engineering	2017
3. Nima Rafibakhsh, Ph.D. in Mechanical Engineering	2017
2. Chirag Shah, M.S. in Mechanical Engineering	2017
1. Yue Liu, M.S. in Mechanical Engineering	2016

Graduate Council Representative

4. Deanna Flynn, Ph.D. in Mechanical Engineering	2025 (expected)
3. Brian Zhang, Ph.D. in Mechanical Engineering	2023 (expected)
2. Jeffrey Klow, Ph.D. in Robotics and Mechanical Engineering	2020
1. Mike Hector, M.S. in Mechanical Engineering	2019

Senior Design ME 418 and ME 419:

8. Ivan Chen, Daniel Coffey, and Faith Holm <i>Enclosed Forklift Compartment</i>	2021-2022
7. Brock Crolley, Ryan J. Goss, Zicheng Longm and Peter Allen Moshinsky <i>Badminton Launcher</i>	2021-2022
6. Allison Martz, Brayden Wiggle, Amar Naggar, To Phan, and Le Phan <i>Photography Apparatus for a Chemical Biology Lab</i>	2021-2022
5. Spencer Sneider, Caleb Schuh, and Kyra Emmer <i>Development of an Effective, Escape-proof Trap for Capturing Pest Snails</i>	2020-2021
4. Christopher Marangoni Norris and Theodora Brooke Perednia <i>ROV Kit to Teach Young Engineers</i>	2019-2020
3. Tyler Forehand, Gordon Colfax, and Isshu Lee <i>Electric Lever Feedback</i>	2017-2018
2. Edward Soller, Griffin Seager, and Mohammed Almazrouei <i>Manual Hydraulic Simulation System</i>	2016-2017
1. Parker Bruns, Ashlen Watrous, and Jordan Gregoire <i>Innovative Right Arm Brace to Assist With Elbow Flexion and Wrist Extension</i>	2016-2017

TEACHING

Oregon State University

- ENGR 248: Engineering Graphics and 3-D Modeling (3 credits)
Introduction to graphical communication theory, including freehand sketching, geometric construction, multi-view, pictorial, sectional and auxiliary view representation and dimensioning techniques.
– Fall 2016, 2018 – 2023; Winter 2016, 2018 – 2024; Spring 2016, 2017, 2019
- ME611: Modern Product Design (4 credits)
Product development and prototyping is examined from a research standpoint in this course. Customer outcomes gathering, functional modeling, product architecture, modern techniques for concept generation and selection are explored.
– Fall 2016, 2019, 2020; Winter 2022 – 2024

- ME599: Design for Human Modeling (4 credits)
Project-based course provides an introduction to theory and applications in Digital Human Modeling (DHM), human-centered modern product design, and computational ergonomics.
– Winter 2018, 2020; Spring 2022, 2024
- ME507: Design Seminar (1 credit)
Graduate level course focuses on to expose graduate students to the wide range of research being pursued in mechanical engineering.
– Winter 2018
- ME502: Independent Studies (4 credits)
Topics will include systems visualization and prototyping techniques for early design (embodiment), including sketch-based modeling (sketch-to-surface or sketch-to-solid models), realistic CAD modeling, photo-realistic rendering, animations, and virtual-reality.
– Winter 2019

Purdue University

- IE 558: Safety Engineering (3 credits) (*Co-taught with Dr. Vincent G. Duffy*)
Application of human factors and engineering practice in accident prevention and the reduction of health hazards are presented. The objective of this course is to provide an understanding of the safety and health practices which fall within the responsibilities of the engineer in industry.
– Spring 2013
- IE 385: Work Analysis and Design (3 credits) (*Lab instructor*)
Fundamentals of work methods and measurement. Applications of engineering, psychological, and physiological principles to the analysis and design of human work systems. Lectures and laboratory sessions include designing and analyzing workstation through Catia and JACK.
– Spring 2011, 2013, 2014

PROFESSIONAL SERVICE

Journal Reviewer:

- ASME Journal of Mechanical Design (JMD)
- ASME Journal of Computing and Information Science in Engineering (JCISE)
- International Journal of Human Factors and Ergonomics (IJHFE)
- International Journal of Vehicle Design (IJVD)
- Research in Engineering Design (RED)
- International Journal of the Digital Human (IJDH)
- Technology in Society
- Ergonomics
- Applied Ergonomics
- Ergonomics in Design
- Safety Science
- Fire Safety Journal

Conference Reviewer:

- American Society of Mechanical Engineers (ASME) International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC-CIE)
- Human-Computer Interaction International (HCII)
- American Institute of Aeronautics and Astronautics (AIAA) InfoTech

Conference Scientific Committee, Board Member and/or Session Organizer:

- Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management at Human-Computer Interaction International (HCII-DHM)
- International Digital Human Modeling Symposium (DHM)
- Human Factors in Design and Manufacturing at International Design Engineering Technical Conferences and Computers and Information in Engineering Conference (ASME-IDETC)

UNIVERSITY SERVICE

University Level:

- Graduate School Award Review (2021, 2022, 2023)
- Engineering and Design for Society (EDS) Initiative (2018 - 2020)

College Level:

- College Of Engineering Commencement Marshall (2017, 2019, 2020)
- College of Engineering Outreach and Recruitment Committee (2019 - 2020)

School Level:

- MIME Faculty Search Committee (2016 - 2017, 2017 - 2018, 2018 - 2019)
- Mechanical Engineering graduate admissions (Design Group) (2016 - present)

HONORS AND AWARDS

- Best Paper Award in the ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference (IDETC-CIE) (2019)
- OSU MIME Strategic Excellence Initiatives Instructional and Research Equipment Award (2017, 2019)
- OSU MIME Strategic Excellence Initiatives Faculty Travel Award (2019)
- Purdue University Teaching Academy Graduate Teaching Award (2015)
- Purdue University Graduate School Summer Research Fellowship (2014)
- Purdue University Graduate School Summer Research Fellowship (2012)
- Alpha Pi Mu National Industrial Engineering Honor Society (2006)
- Purdue University Industrial Engineering Honors Program (2006)

TECHNICAL SKILLS

- Computer Aided Design: Catia V5, SolidWorks, Autodesk Fusion, Siemens NX, Shapr3D, Onshape, KeyShot
- Computer Aided Engineering: JACK, 3DSSPP, Ansys, SimScale, OpenSim, Santos Virtual Human
- Vector and Freehand Drawing: OmniGraffle, Lucid, SmartDraw, Microsoft Visio, SketchBook Pro
- Data Analysis: SPSS, JMP Pro, DataGraph
- Press and Publication: MS Office, OS Productivity, Adobe Suite, L^AT_EX
- Hardware: Motion Capture, Virtual Reality, Eye-tracking, Lumbar Motion Monitor, Simulators