

**Jonathan Edwards Dodge**  
<https://faculty.ist.psu.edu/jxd6067/>

### EDUCATION

- Doctor of Philosophy*, Computer Science (HCI-AI) April 2022  
Oregon State University, Corvallis, OR GPA 3.72
- Relevant coursework: HCI Research Methods, Persona Methods, Empirical Lab Studies of Software Development, Deep Learning, Intelligent Agents and Decision Making, Artificial Intelligence
  - DISSERTATION - “*Explanations and Processes to Enable Humans to Assess AI with Respect to Manipulable Properties*”
- Master of Science*, Computer Science (Graphics) December 2009  
Oregon State University, Corvallis, OR GPA 3.70
- Relevant coursework: Graphics, Animation, Geometric Modeling, Image and Flow Synthesis, Information Visualization, Shader Programming, Graph Theory, Algorithms, Programming Languages, Object Oriented Programming, Intro to Differential Geometry, Case Study Research, Special Topics in HCI
  - THESIS - “*Studies to Inform a Visual Language for Authoring Interactive Exercise Prescriptions*”
- Bachelor of Science*, Computer Science May 2006  
Harvey Mudd College, Claremont, CA GPA 3.01 (In major: 3.29)

### PROFESSIONAL EXPERIENCE

- Pennsylvania State University, University Park, PA*
- Assistant Professor, College of IST Summer 2022-present
- IBM Research AI, Yorktown Heights, NY*
- Graduate Research Intern Summer 2018
- Oregon State University, Corvallis, OR*
- Research Assistant Summer 2017-Spring 2018, Fall 2018-Spring 2022
  - Teaching Assistant (Senior Design, Data Structures) Fall 2014-Spring 2015, Fall 2015-Spring 2017
  - Instructor (Data Structures) Summer 2009, Summer 2015
- Hatfield Marine Science Center, Newport, OR*
- Software Developer Winter 2010-Spring 2013
- Oregon State University, Corvallis, OR*
- Research Assistant Summer 2008
  - Teaching Assistant (Intro CS, Software Engineering II, Data Structures, Graphics) Fall 2006, Fall-Spring 2007-2008, Winter-Spring 2009
- Harvey Mudd College, Claremont, CA*
- Student Researcher Summer 2005-Spring 2006
  - Clinic Project for The Aerospace Corporation Fall 2004-Spring 2005
  - Grader/Tutor (Graphics, Software Development) Fall 2004, Fall 2005, Spring 2005, Spring 2006

### EXTERNAL RESEARCH FUNDING

- G02. U.S. Army Research Office (ARO) Award # TBD October 2023-March 2025 (estimated)  
*MIXTAPE: Middleware for Interactive XAI with Tree-based AI Performance Evaluation.*  
Phase 2 proposal for Solicitation DoD STTR 22.B.
- G01. U.S. Army Research Office (ARO) Award W911NF22P0084 October 2022-March 2023  
*MIXTAPE: Middleware for Interactive XAI with Tree-based AI Performance Evaluation.*  
Phase 1 proposal for Solicitation DoD STTR 22.B.

## ADVISING

- Ph.D Students
  - P03. Jeff Schulman (expected graduation in 2027)
  - P02. Shikha Soneji (expected graduation 2026)
  - P01. Iyadunni Adenuga (expected graduation early 2024)
- Master's Students
  - M04. Sourav Panda (M.S., expected graduation spring 2025)
  - M03. Arisha Rao (M.S., expected graduation spring 2024)
  - M02. Mitchell Hoelsing (M.S., expected graduation spring 2024)
  - M01. Sujay Koujalgi (M.S., graduated August 2023)

## TEACHING

- SP24 - DS402: Explainable AI (Penn State, TBD enrolled)
- FA23 - DS402: Explainable AI (Penn State, 36 enrolled)
- SP23 - IST402: Explainable AI (Penn State, 14 enrolled)
- FA22 - DS330: Visual Analytics for Data Science (Penn State, 57 enrolled)
- SU15 - CS261: Data Structures (Oregon State, 38 enrolled)
- SU09 - CS261: Data Structures (Oregon State, ?? enrolled)

## EXTERNAL SERVICE

- ACM Transactions on Intelligent Information Systems (TIIS): Reviewer 2020-2023, Distinguished Reviewer 2023-present
- ACM Conference on User Modeling and Perception (UMAP): Reviewer 2021, PC member 2023
- Human-Computer Interaction Journal: Reviewer 2022
- ACM Conference on Human Factors in Computing Systems (CHI): Reviewer 2019-2020, 2022
- ACM Conference on Intelligent User Interfaces (IUI): Reviewer 2019
- ACM Conference on Fairness, Accountability, and Transparency (FAccT): Reviewer 2023

## INTERNAL SERVICE

- Faculty Search Committee (IST+ICDS Human-centered AI co-hire) 2022-2023
- Qualifying Exam Committee Member (2023, five students)
- Graduate Recruiting Committee 2023
- Ph.D. Committee Member
  - Nicholas Barron, Department of Meteorology and Atmospheric Science, 2022-?

## MEMBERSHIPS AND AWARDS

- Distinguished Reviewer (2023, given by ACM TIIS for recognition of sustained service contribution over recent years)
- Best Reviewer Award (2021, given by conference organizers for insightful and supportive feedback on submissions to User Modeling, Adaptation, and Personalization (UMAP))
- Graduate Research Assistant Award (2021, given by Oregon State University's College of Engineering for outstanding achievement as a graduate research assistant)
- Workshop Organizer (2021 and 2022, for Transparency and Explanations in Smart Systems (TExSS))
- Outstanding Paper Award (2019, given by IUI conference organizers for *Explaining Models: An Empirical Study of How Explanations Impact Fairness Judgment* by Dodge et al.)
- The Aerospace Corporation Spot Award (2005, given by The Aerospace Corporation for outstanding performance on our HMC Clinic project)
- Wing Tam Award (2004, given by Harvey Mudd College annually to a student or student team for demonstrating excellence in software design and development)
- Paul Kafrissen CS Award (2002, given by Wyoming Seminary for excellence in the study of CS)
- National Merit Commended Scholar (2002)
- Eagle Scout Award (2000, Project: Constructed a building for the Lightstreet Fire Hall, from pouring the foundation to shingling)
- Trustee Achievement Scholarship (1999, given by Wyoming Seminary to students who combine outstanding performance on a competitive exam with a solid record of citizenship and achievement.)

## TALKS

- T14. Faculty Candidate talk: *Explaining AI to People: Proposing then Evaluating Explanations, Processes, and Tasks*. Penn State University, 2022
- T13. Faculty Candidate talk: *Explaining AI to People: Proposing then Evaluating Explanations, Processes, and Tasks*. Washington State University, 2022
- T12. Faculty Candidate talk: *Explaining AI to People: Proposing then Evaluating Explanations, Processes, and Tasks*. UC Riverside, 2022
- T11. Faculty Candidate talk: *Explaining AI to People: Proposing then Evaluating Explanations, Processes, and Tasks*. Illinois Institute of Technology (IIT), 2022
- T10. Conference presentation: *How Do People Rank Multiple Mutant Agents?*. ACM Conference on Intelligent User Interfaces (IUI), 2022
- T09. Conference presentation: *After-Action Review for AI (AAR/AI)*. ACM Transactions on Intelligent Information Systems (TIIS), 2022
- T08. Workshop presentation: *Position: Who Gets to Harness (X)AI? For Billion-Dollar Organizations Only*. ACM IUI Workshops, 2022
- T07. Invited talk: *We Can Measure XAI Explanations Better with Templates*. Aggregate Intellect Socratic Circles (AISC), 2021
- T06. Workshop presentation: *Position: We Can Measure XAI Explanations Better with Templates*. ACM IUI Workshops, 2019
- T05. Conference Presentation: *Explaining Models: An Empirical Study of How Explanations Impact Fairness Judgment*. ACM Conference on Intelligent User Interfaces (IUI), 2019
- T04. Conference Presentation: *How the Experts Do It: Assessing and Explaining Agent Behaviors in Real-Time Strategy Games*. ACM Conference on Human Factors in Computing Systems (CHI), 2018
- T03. Conference Presentation: *Toward Foraging for Understanding of StarCraft Agents: An Empirical Study*. ACM Conference on Intelligent User Interfaces (IUI), 2018

- T02. Workshop Presentation: *What Should Be in an XAI Explanation? What IFT Reveals*. ACM IUI Workshops, 2018
- T01. Conference Presentation: *Implications for an Exercise Prescription Authoring Notation*. IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC), 2009

### JOURNAL PUBLICATIONS

- J06. R. Khanna, J. Dodge, A. Anderson, R. Dikkala, J. Irvine, Z. Shureih, K. Lam, C. Matthews, Z. Lin, M. Kahng, A. Fern, and M. Burnett. *Finding AI's Faults with AAR/AI: An Empirical Study*. ACM Transactions on Interactive Intelligent Systems (TIIS), 2022.
- J05. J. Dodge, A. Anderson, R. Khanna, J. Irvine, R. Dikkala, K. Lam, D. Tabatabai, A. Ruangrotsakun, Z. Shureih, M. Kahng, A. Fern, and M. Burnett. *From "No Clear Winner?" to an Effective Explainable Artificial Intelligence Process: An Empirical Journey*. Applied AI Letters, 2021.
- J04. J. Dodge, R. Khanna, J. Irvine, K. Lam, T. Mai, Z. Lin, N. Kiddle, E. Newman, A. Anderson, S. Raja, C. Matthews, C. Perdriau, M. Burnett, and A. Fern. *After-Action Review for AI (AAR/AI)*. ACM Transactions on Interactive Intelligent Systems (TIIS), 2021.
- J03. S. Penney, J. Dodge, A. Anderson, C. Hilderbrand, L. Simpson, and M. Burnett. *The Shoutcasters, the Game Enthusiasts, and the AI: Foraging for Explanations of Real-Time Strategy Players*. ACM Transactions on Interactive Intelligent Systems (TIIS), 2021.
- J02. A. Anderson, J. Dodge, A. Sadarangani, Z. Juozapaitis, E. Newman, J. Irvine, S. Chattopadhyay, M. Olson, A. Fern, and M. Burnett. *Mental Model of Mere Mortals with Explanations of Reinforcement Learning*. ACM Transactions on Interactive Intelligent Systems (TIIS), 2020.
- J01. B. Bentow, J. Dodge, A. Homer, C.D. Moore, R.M. Keller, M. Presley, R. Davis, J. Seidel, C. Lee, and J. Betser. *Grid-enabling a Vibroacoustic Analysis Toolkit*. International Journal of High Performance Computing and Networking, 2008.

### CONFERENCE PUBLICATIONS

- C13. J. Dodge, A. Anderson, M. Olson, R. Dikkala, and M. Burnett. *How Do People Rank Multiple Mutant Agents?*. ACM Conference on Intelligent User Interfaces (IUI), 2022. (62/253=25% acceptance)
- C12. (short) D. Tabatabai, A. Ruangrotsakun, J. Irvine, J. Dodge, Z. Shureih, K. Lam, M. Burnett, A. Fern, and M. Kahng. *"Why Did My AI Agent Lose?": Visual Analytics for Scaling Up After-Action Review*. IEEE Visualization and Visual Analytics (VIS), 2021.
- C11. R. Dikkala, R. Khanna, C. Matthews, J. Dodge, S. Raja, C. Hu, J. Irvine, Z. Shureih, K. Lam, A. Anderson, M. Kahng, A. Fern and M. Burnett. *Doing COVID-era Controlled Studies with Humans: Tales from the Trenches*. Cooperative and Human Aspects of Software Engineering (CHASE), 2021.
- C10. T. Mai, R. Khanna, J. Dodge, J. Irvine, K. Lam, Z. Lin, N. Kiddle, E. Newman, S. Raja, C. Matthews, C. Perdriau, M. Burnett, and A. Fern. *Keeping It "Organized and Logical": After-Action Review for AI (AAR/AI)*. ACM Conference on Intelligent User Interfaces (IUI), 2020. (61/283=22% acceptance)
- C09. A. Anderson, J. Dodge, A. Sadarangani, Z. Juozapaitis, E. Newman, J. Irvine, S. Chattopadhyay, A. Fern, and M. Burnett. *Explaining Reinforcement Learning to Mere Mortals: An Empirical Study*. International Joint Conference on Artificial Intelligence (IJCAI), 2019. (850/4752=18% acceptance)
- C08. J. Dodge, Q. V. Liao, Y. Zhang, R. Bellamy, and C. Dugan. *Explaining Models: An Empirical Study of How Explanations Impact Fairness Judgment*. ACM Conference on Intelligent User Interfaces (IUI), 2019. (71/282=25% acceptance, **Outstanding Paper**)
- C07. J. Dodge, S. Penney, C. Hilderbrand, A. Anderson, L. Simpson, and M. Burnett. *How the Experts Do It: Assessing and Explaining Agent Behaviors in Real-Time Strategy Games*. ACM Conference on Human Factors in Computing Systems (CHI), 2018. (666/2590=26% acceptance)
- C06. S. Penney, J. Dodge, C. Hilderbrand, A. Anderson, and M. Burnett. *Toward Foraging for Understanding of StarCraft Agents: An Empirical Study*. ACM Conference on Intelligent User Interfaces (IUI), 2018. (43/299=14% acceptance)

- C05. S. Greydanus, A. Koul, J. Dodge, and A. Fern. *Visualizing and Understanding Atari Agents*. International Conference on Machine Learning (ICML), 2018. (621/2473=25% acceptance)
- C04. K. Vergin, N. Jhirad, J. Dodge, C. Carlson, and S. Giovannoni. *Marine Bacterioplankton Consortia Follow Deterministic, Non-neutral Community Assembly Rules*. Aquatic Microbial Ecology, 2017.
- C03. Y. Riche, J. Dodge, and R.A. Metoyer. *Studying Always-on Electricity Feedback in the Home*. ACM Conference on Human Factors in Computing Systems (CHI), 2010. (302/1346=22% acceptance)
- C02. J. Dodge, R.A. Metoyer, and K. Gunter. *Implications for an Exercise Prescription Authoring Notation*. IEEE Symposium on Visual Languages and Human-Centric Computing (VLHCC), 2009. (20/77=29% acceptance)
- C01. R.A. Metoyer, S. Stumpf, C. Neumann, J. Dodge, J. Cao, and A. Schnabel. *Explaining How to Play Real-Time Strategy Games*. 29th SGAI International Conference on Artificial Intelligence, 2009.

### WORKSHOP PUBLICATIONS

- W10. I. Adenuga and J. Dodge. *Conceptualizing the Relationship between AI Explanations and User Agency*. CHI Workshop on Human-Centered Perspectives in Explainable AI (HCXAI), 2023.
- W09. J. Dodge. *Position: The Case Against Case-Based Explanation*. IUI Workshop on Transparency and Explanations in Smart Systems (TESS), 2022.
- W08. J. Dodge. *Position: Who Gets to Harness (X)AI? For Billion-Dollar Organizations Only*. IUI Workshop on Transparency and Explanations in Smart Systems (TESS), 2021.
- W07. K. Lam, Z. Lin, J. Irvine, J. Dodge, Z. Shureih, R. Khanna, M. Kahng, and A. Fern. *Identifying Reasoning Flaws in Planning-Based RL Using Tree Explanations*. IJCAI-PRICAI 2020 Workshop on Explainable Artificial Intelligence, 2020.
- W06. J. Dodge and M. Burnett. *Position: We Can Measure XAI Explanations Better with Templates*. IUI Workshop on Explainable Smart Systems and Algorithmic Transparency in Emerging Technologies (ExSS-ATEC), 2020.
- W05. J. Dodge, S. Penney, A. Anderson and M. Burnett. *What Should Be in an XAI Explanation? What IFT Reveals*. IUI Workshop on Explainable Smart Systems, 2018.
- W04. S. Greydanus, A. Koul, J. Dodge, and A. Fern. *Visualizing and Understanding Atari Agents*. Neural Information Processing Systems Interpretability Workshop (NeurIPS Workshops), 2017.
- W03. J. Dodge, M. Hilton, R. A. Metoyer, J. Hunter, K. Smeltzer, C. Vijay, and A. Atkinson. *Deriving Age Diverse Personas from a Participatory Design Study on Home Electricity Feedback*. CHI Conference Extended Abstracts on Human Factors in Computing Systems, 2017.
- W02. C. Neumann, A. Schnabel, J. Dodge, R. A. Metoyer, S. Stumpf. *How Experts Explain Strategic Behavior During Real-Time Strategy Games*. Association for the Advancement of Artificial Intelligence Workshops (AAAI Workshops), 2007.
- W01. B. Bentow, J. Dodge, A. Homer, C.D. Moore, R.M. Keller, M. Presley, R. Davis, J. Seidel, C. Lee, and J. Betser. *Grid-Enabling a Vibroacoustic Analysis Application*. IEEE/ACM International Workshop on Grid Computing, 2005.

### OTHER PUBLICATIONS

- O05. J. Dodge. *Explanations and Processes to Enable Humans to Assess AI with Respect to Manipulable Properties*. PhD Dissertation for Oregon State University, 2022.
- O04. T. Kuffik, J. Dodge, S. Kleanthous Loizou, B. Lim, C. Negreanu, A. Shulner-Tal, S. Stumpf. *TESS: Transparency and Explanations in Smart Systems*. IUI Proceedings Extended-Abstract, 2022.
- O03. A. Smith-Renner, S. Loizou, J. Dodge, M.K. Lee, B. Lim, T. Kuffik, A. Sarkar, A. Shulner-Tal, and S. Stumpf. *TESS: Transparency and Explanations in Smart Systems*. IUI Proceedings Extended-Abstract, 2021.

- O02. J. Dodge. *Studies to Inform a Visual Language for Authoring Interactive Exercise Prescriptions*. Master's Thesis for Oregon State University, 2009.
- O01. B. Bentow, J. Dodge, A. Homer, C.D. Moore, R.M. Keller, M. Presley, R. Davis, J. Seidel, C. Lee, and J. Betser. *System Management for Grid-Enabling a Vibroacoustic Analysis Application*. IEEE/IFIP Network Operations and Management Symposium (NOMS), 2006.