JUAN DANIEL PINTO

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EDUCATION

Expected
2025
Ph.D. University of Illinois Urbana-Champaign, College of Education
Digital Environments for Learning, Teaching, and Agency (DELTA)
Educational Data Science
Dissertation Title: "Intrinsically interpretable artificial neural networks for learner modeling"
Advised by Luc Paquette

2020
M.A. University of Michigan, School of Education
Design and Technologies for Learning Across Contexts and Cultures
Learning Experience Design
Advised by Donald Freeman

2018
M.A. The University of Texas at Austin, College of Liberal Arts
Middle Eastern Languages and Cultures
Hebrew Applied Linguistics
Thesis Title: "Creating a Frequency dictionary of spoken Hebrew: A reproducible use of technology to overcome scarcity of data"
Advised by Esther Raizen and Elaine Horwitz

2016
B.A. Brigham Young University, David M. Kennedy Center for International Studies
Ancient Near Eastern Studies
Linguistics
Modern Hebrew

RESEARCH INTERESTS

AI in education, learning sciences, educational data mining, learning analytics, interpretable machine learning, generalizability, learner modeling, adaptive learning, artificial neural networks, algorithmic fairness, intelligent tutoring systems, knowledge assessment, online learning environments, language education, computer science education

PEER-REVIEWED JOURNAL ARTICLES

2023
Zhang, Y., **Pinto, J. D.**, Fan, A. X., & Paquette, L. (2023). Using problem similarity- and order-based weighting to model learner performance in introductory computer science problems. *Journal of Educational Data Mining*, 15(1), 63–99. https://doi.org/10.5281/zenodo.7646789

2023
Zhang, Y., Paquette, L., **Pinto, J. D.**, & Fan, A. X. (2023). Utilizing programming traces to explore and model the dimensions of novices' code-writing skill. *Computer Applications in Engineering Education*. https://doi.org/10.1002/cae.22622

2022   Zhang, Y., Paquette, L., **Pinto, J. D.**, Liu, Q., & Fan, A. X. (2022). Combining latent profile analysis and programming traces to understand novices' differences in debugging. *Education and Information Technologies*. https://doi.org/10.1007/s10639-022-11343-7

2021   Quintana, R. M., **Pinto, J. D.**, & Tan, Y. (2021). What we learned when we compared discussion posts from one MOOC hosted on two platforms. *Online Learning*, 25(4), 7–24. https://doi.org/10.24059/olj.v25i4.2897

2020   **Pinto, J. D.**, Quintana, C., & Quintana, R. M. (2020). Exemplifying computational thinking scenarios in the age of COVID-19: Examining the pandemic's effects in a project-based MOOC. *Computing in Science & Engineering*, 22(6), 97–102. https://doi.org/10.1109/MCSE.2020.3024012

BOOK CHAPTERS

2024   **Pinto, J. D.** & Paquette, L. (Forthcoming). Deep learning for educational data science. In *Trust and Inclusion in AI-Mediated Education: Where Human Learning Meets Learning Machines*. Springer International Publishing.

2024   Liu, Q., **Pinto, J. D.**, & Paquette, L. (Forthcoming). Applications of explainable AI (XAI) in education. In *Trust and Inclusion in AI-Mediated Education: Where Human Learning Meets Learning Machines*. Springer International Publishing.

CONFERENCE PROCEEDINGS

2024   Fan, A., Liu, Q., Paquette, L., & **Pinto, J. D.** (November 2024). Using LLM-based filtering to develop reliable coding schemes for rare debugging strategies. *6th International Conference on Quantitative Ethnography (ICQE)*, Philadelphia, Pennsylvania. (full paper)

2024   **Pinto, J. D.**, & Paquette, L. (July 2024). Towards a unified framework for evaluating explanations. *Proceedings of the Human-Centric eXplainable AI in Education Workshop (HEXED 2024)*, Atlanta, Georgia. (workshop paper)

2024   **Pinto, J. D.**, Paquette, L., & Bosch, N. (July 2024). Intrinsically interpretable artificial neural networks for learner modeling. *Proceedings of the 17th International Conference on Educational Data Mining (EDM 2024)*, Atlanta, Georgia. (doctoral consortium)

2023   **Pinto, J. D.**, Liu, Q., Paquette, L., Zhang, Y., & Fan, A. X. (October 2023). Investigating the relationship between programming experience and debugging behaviors in an introductory computer science course. *5th International Conference on Quantitative Ethnography (ICQE)*, Melbourne, Australia. (full paper, nominated for best student paper)

2023   Zhang, Y., **Pinto, J. D.**, Fan, A. X., & Paquette, L. (March 2023). Using problem similarity- and order-based weighting to model learner performance in introductory computer science problems. *Educational Data Mining in Computer Science Education (CSEDM) Workshop 2023*, Arlington, Texas. (workshop paper)

2022 Zhang, Y., Paquette, L., **Pinto, J. D.**, & Fan, A. X. (March 2022). Utilizing programming traces to explore and model the dimensions of novices' code-writing skill. *Educational Data Mining in Computer Science Education (CSEDM) Workshop 2022*, Virtual. (workshop paper)

2021 **Pinto, J. D.**, Zhang, Y., Paquette, L., & Fan, A. X. (June 2021). Investigating elements of student persistence in an introductory computer science course. *Educational Data Mining in Computer Science Education (CSEDM) Workshop 2021*, Virtual. (workshop paper)

2021 **Pinto, J. D.**, Quintana, C., & Quintana, R. M. (April 2021). Exploring how learners integrate personally meaningful issues in a project-based MOOC. *2021 Annual Meeting of the American Educational Research Association (AERA)*, Virtual. (full paper)

2021 Quintana, R. M., **Pinto, J. D.**, & Tan, Y. (April 2021). What we learned when we compared discussion posts from one MOOC hosted on two platforms. *2021 American Educational Research Association (AERA) Annual Meeting*, online. (full paper)

2018 **Pinto, J. D.** (April 2018). Creating a conversational Hebrew vocabulary list: A reproducible use of technology to overcome scarcity of data. *National Council of Less Commonly Taught Languages (NCOLCTL) 21st Annual Conference*, Herndon, VA. (full paper)

2018 **Pinto, J. D.** (February 2018). Transitional Semi-Allophonic Spirantization in Tiberian Hebrew. *Jil Jadid Graduate Student Conference in Middle Eastern Languages and Literatures*, Austin, TX. (full paper)

2015 **Pinto, J. D.** (January 2015). Lexical variation in the understanding of *baraʾ*: Homonymy or polysemy? *Students of the Ancient Near East 8th Annual Symposium*, Provo, UT. (full paper)

OTHER CONFERENCE PRESENTATIONS

2024 **Pinto, J. D.**, Liu, Q. (February 2024) The imperative of explainability: Increasing transparency in educational AI. *2024 College of Education Graduate Student Conference*, Urbana-Champaign, Illinois. (poster)

2023 **Pinto, J. D.**, Liu, Q. (December 2023) Trustworthy AI requires algorithmic interpretability: Some takeaways from recent uses of eXplainable AI (XAI) in education. *Trustworthy AI Lab for Education Summit*, South Bend, Indiana. (poster, won best poster)

2023 **Pinto, J. D.** (2023). Intelligent tutors, cultural blind spots: Implications of underrepresentation in adaptive learning research. *International Society of the Learning Sciences Annual Meeting (ISLS 2023)*, Montreal, Canada, 1952–1953. (poster)

2023 **Pinto, J. D.**, Paquette, L., & Bosch, N. (2023). Interpretable neural networks vs. Expert-defined models for learner behavior detection. *Companion Proceedings of the 13th International Conference on Learning Analytics & Knowledge Conference (LAK23)*, Arlington, Texas, 105–107. (poster)

| 2022 | **Pinto, J. D.** (2022). Artificial intelligence for equitable global education: A call for more representative adaptive learning research and design practices in low and middle-income countries. *2022 Learning Sciences Graduate Student Conference (LSGSC)*, Bloomington, Indiana. (poster) |

| 2020 | **Pinto, J. D.** (2020, July). Personalizing digital learning environments. *Research Evaluation and Action Plan (REAP) Symposium*, Urbana-Champaign, IL. (symposium presentation) |

| 2020 | **Pinto, J. D.** (2020, April). Using data to inform learning experience design. *Academic Innovation 2020 Student Showcase*, Ann Arbor, MI. (symposium presentation) |

| 2020 | **Pinto, J. D.** (2020, February). The role students should play in the design, collection, and analysis of learning analytics. *Academic Innovation Data Showcase*, Ann Arbor, MI. (panel participant) |

| 2018 | **Pinto, J. D.** (2018, October). Language learning for the 21st century: Interpersonal communication through digital communities. *Texas Language Center: "Language Matters!" Lecture Series*, Austin, TX. (invited presentation) |

RESEARCH LABS & INSTITUTES

| 2023– | **NSF AI Institute for Inclusive Intelligent Technologies for Education (INVITE)**
 University of Illinois Urbana-Champaign
 Graduate research assistant |

| 2020– | **Human-centered Educational Data Science Lab (HEDS)**
 University of Illinois Urbana-Champaign
 Graduate research assistant |

| 2024 | **ETS Research Institute**
 Princeton, NJ
 Ida Lawrence research summer intern |

| 2021 | **(Human + Machine) Learning Lab**
 University of Illinois Urbana-Champaign
 Graduate research assistant |

| 2020 | **Center for Academic Innovation (CAI)**
 University of Michigan
 Learning experience design research fellow |

GRANTS AND FELLOWSHIPS

| 2020–2023 | **Illinois Distinguished Fellowship**
 University of Illinois Urbana-Champaign |

| 2020 | **Summer Pre-Doctoral Institute Fellowship** |

Graduate College, University of Illinois Urbana-Champaign

2019-2020 **Educational Studies Fellowship**
School of Education, University of Michigan

2019 **Love of Learning Award**
The Honor Society of Phi Kappa Phi

2018–2019 **J. William Fulbright Fellowship to Israel**
J. William Fulbright Foreign Scholarship Board

2018 **NFMLTA Travel Support Grant for Language Professionals**
National Federation of Modern Language Teachers Associations

2017 **Love of Learning Award**
The Honor Society of Phi Kappa Phi

2015–2016 **Full Tuition Academic Scholarship**
Brigham Young University

2015 **ORCA Research Grant**
Office of Research and Creative Activities, Brigham Young University

2015 **Language Facilitator Scholarship**
Foreign Language Student Residence, Brigham Young University

2014–2015 **Kennedy Scholar Award**
David M. Kennedy Center for International Studies, Brigham Young University

2014–2015 **Eugene D. and Edna L. Connor Academic Scholarship**
Brigham Young University

2014 **Jennifer C. Groot Fellowship**
American Center of Oriental Research

2013–2014 **Karl G. Maeser Academic Scholarship**
Brigham Young University

OTHER AWARDS AND HONORS

2022 **2nd CSEDM Data Challenge Winner (Phase 1, 2nd Prize)**
Educational Data Mining in Computer Science Education (CSEDM)

2020, 2021 **List of Teachers Ranked as Excellent by Their Students**
Center for Innovation in Teaching & Learning (CITL), University of Illinois Urbana-Champaign

2020 **James A. Kelly Learning Levers Development Award**

Center for Education Design, Evaluation, and Research (CEDER), University of Michigan

2019–2020 **Graduate Student Instructorship**
School of Education, University of Michigan

2016–2018 **Graduate Student Teaching Assistantship**
Middle Eastern Languages and Cultures, The University of Texas at Austin

2016 **BYU Representative for Phi Kappa Phi Fellowship**
The Honor Society of Phi Kappa Phi, Brigham Young University Chapter

TEACHING ASSISTANTSHIPS

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

Learning Technologies *(Spring 2023)*
Introduction to Digital Learning Environments (*Fall 2022, Fall 2020*)
Disciplinary Literacy *(Spring 2022)*
Critiques of Educational Technology *(Spring 2022)*
Assessing Student Performance *(Fall 2021)*

UNIVERSITY OF MICHIGAN

History of College Athletics *(Fall 2019, Winter 2020)*

ORANIM ACADEMIC COLLEGE OF EDUCATION

English for the Workplace Conversation Course *(Spring 2019)*
Style and Composition *(Fall 2018, Spring 2019)*
Rhetorical Skills *(Fall 2018, Spring 2019)*
Linguistics *(Fall 2018)*
Writing and Editing Advanced Academic Papers *(Fall 2018)*

THE UNIVERSITY OF TEXAS AT AUSTIN

Intensive Hebrew I *(Fall 2016, Fall 2017)*
Intensive Hebrew II *(Spring 2017, Spring 2018)*

BRIGHAM YOUNG UNIVERSITY

Intensive Biblical Hebrew I *(Summer 2015)*
Intensive Biblical Hebrew II *(Summer 2015)*
Introduction to Ancient Near Eastern Studies *(Fall 2013)*

PROFESSIONAL SERVICE

2024 **Lead Workshop Organizer**

HEXED (Human-Centric eXplainable AI in Education) Workshop @ EDM'24

2021–   **Assistant Webmaster**
         International Educational Data Mining Society (IEDMS)

2023–2024 **Technology Committee Member**
         2024 UIUC College of Education Graduate Student Conference (EdGSC)

2022, 2023 **Speakers Committee Co-Chair**
         Learning Sciences Graduate Student Conference (LSGSC)

JOURNAL REVIEWER

Journal of Educational Data Mining (JEDM) | 2023

Transactions on Knowledge and Data Engineering (TKDE) | 2021

CONFERENCE REVIEWER

College of Education Graduate Student Conference (EdGSC) | 2024

International Conference on Quantitative Ethnography (ICQE) | 2023

International Society of the Learning Sciences (ISLS) | 2023

Learning Analytics and Knowledge Conference (LAK) | 2023

American Educational Research Association (AERA) | 2024, 2021

Learning Sciences Graduate Student Conference (LSGSC) | 2022

COMMUNITY SERVICE

2023–   **Vice President, Board of Directors**
         Winfield Village Housing Cooperative

2023–   **Member of Executive Team**
         (CU)rbanism Club (YIMBY and Strong Towns Chapter)

2021, 2023 **Volunteer**
         UIUC Campus Bike Center

2020–2021 **Volunteer**
         Sunrise Movement

2018–2019 **Senior Mentor**
         Shimshit English Club, Raeim School, Shimshit, Israel

2017   **Online ESL Tutor for Refugees**
         Paper Airplanes

2016–2017 **Den Leader**
Boy Scouts of America - Troop 99, Austin, Texas

2016 **Civics and Citizenship ESL Tutor for Refugees**
International Rescue Committee (IRC), Salt Lake City, Utah

2015–2016 **President**
Students of the Ancient Near East (SANE) Club, Brigham Young University

2013–2015 **Vice President**
Students of the Ancient Near East (SANE) Club, Brigham Young University

RELATED TECHNICAL SKILLS

Data analysis Python (NumPy, Pandas, Scikit-learn, Matplotlib, Seaborn), R
Deep learning PyTorch, TensorFlow, Keras
Web programming HTML, CSS, Javascript, Python, Hugo, Jekyll
Other Git, LaTeX, Adobe Creative Cloud (Photoshop, Illustrator, XD)

LANGUAGES

Spanish Native
English Native
Hebrew Superior

PROFESSIONAL MEMBERSHIPS

American Educational Research Association (AERA)
International Educational Data Mining Society (IEDMS)
Society for Learning Analytics Research (SoLAR)
International Society of the Learning Sciences (ISLS)
International Society for Quantitative Ethnography (ISQE)