Juan Daniel **Pinto**

Learning Scientist · Educator · AI Researcher

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Summary

Ph.D. student at the University of Illinois Urbana-Champaign studying digital environments for learning, teaching, and agency. I have a background in linguistics and history, but these days my research specializes in educational data science, adaptive learning systems, and the use of machine learning in educational settings.

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.

Education

University of Illinois Urbana-Champaign
Urbana-Champaign, Illinois

Ph.D. in Curriculum and Instruction — *(Expected) 2025*

- **Emphasis:** Digital Environments for Learning, Teaching, and Agency (DELTA)
- **Advisor:** Luc Paquette
- **Focus:** Educational Data Science

University of Michigan
Ann Arbor, Michigan

M.A. in Educational Studies — *August 2020*

- **Emphasis:** Design and Technologies for Learning Across Contexts and Cultures
- **Advisor:** Donald Freeman
- **Certificate:** Learning Experience Design

The University of Texas at Austin
Austin, Texas

M.A. in Middle Eastern Languages and Cultures — *May 2018*

- **Emphasis:** Hebrew Applied Linguistics
- **Advisors:** Esther Raizen, Elaine Horwitz
- **Thesis:** *Creating a Frequency Dictionary of Spoken Hebrew: A Reproducible Use of Technology to Overcome Scarcity of Data*

Brigham Young University
Provo, Utah

B.A. in Ancient Near Eastern Studies — *April 2016*

- **Emphasis:** Hebrew Bible
- **Minors:** Linguistics, Modern Hebrew

Publications

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. **Forthcoming**

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. **Forthcoming**

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

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

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*. doi:10.1007/s10639-022-11343-7 **2022**

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 Journal*, *25*(4), 101–118. doi:10.24059/olj.v25i4.2897 **2021**

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. doi:10.1109/MCSE.2020.3024012 **2020**

Academic Presentations

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

Pinto, J. D. (2023, June). *Intelligent tutors, cultural blind spots: Implications of underrepresentation in adaptive learning research* [poster presentation]. International Society of the Learning Sciences Annual Meeting (ISLS 2023), Montreal, QC. **2023**

Pinto, J. D., Paquette, L., & Bosch, N. (2023, March). *Interpretable neural networks vs. expert-defined models for learner behavior detection* [poster presentation]. The 13th International Learning Analytics and Knowledge Conference (LAK), Arlington, TX. **2023**

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

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

Zhang, Y., Paquette, L., **Pinto, J. D.**, & Fan, A. (2022, July). *Utilizing programming traces to explore the dimensions of novice programmers' code writing skill* [workshop paper presentation]. 2022 Educational Data Mining in Computer Science Education (CSEDM) Workshop, online. **2022**

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

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

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

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

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

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

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

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

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

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

Research Experience

Human-centered Educational Data Science Lab (University of Illinois Urbana-Champaign)

Urbana-Champaign, Illinois

Graduate Research Assistant — *August 2020 – Present*

- Collaborate on multi-year project evaluating knowledge engineering and machine learning methods for modeling novice computer science student debugging behavior (NSF grant #DRL-1942962).
- Take initiative on personal projects related to lab objectives, including the use of interpretable convolutional neural networks for gaming-the-system behavior and the interpretability of machine-learning-based student modeling.

NSF AI Institute for Inclusive Intelligent Technologies for Education (INVITE)

Urbana-Champaign, Illinois

Graduate Research Assistant — *August 2023 – Present*

- Co-lead and assist on projects as part of the learner modeling team, tasked with designing integrated, generalizable, and interpretable models of student persistence, academic resilience, and collaboration (NSF grant #DRL-2229612).

(Human + Machine) Learning Lab (University of Illinois Urbana-Champaign)

Urbana-Champaign, Illinois

Graduate Research Assistant — *June 2021 – August 2021*

- Conducted preliminary research to set the groundwork for large project exploring algorithmic fairness and potential bias in K-12 mathematics education using adaptive learning.
- Wrote code to allow for connectivity between various tools including Scikit-learn, pyBKT, and IBM's AI Fairness 360.

Center for Academic Innovation (University of Michigan)

Ann Arbor, Michigan

Learning Experience Design Research Fellow — *April 2020 – August 2020*

- Co-authored papers related to computational thinking, MOOCs, the impact of the COVID-19 pandemic on online education.
- Advised additional ongoing research projects related to learning experiences designed at CAI.

Synthetic Phonics for Young EFL Learners (Oranim College of Education)

Kiryat Tiv'on, Israel

Junior Researcher

March 2019 – January 2020

- Conducted quantitative data analysis for experimental study measuring the effectiveness of a synthetic phonics approach to EFL reading education in elementary schools in Israel.

Peace Education During Colombia's Peace Process (University of Michigan)

Ann Arbor, Michigan

Graduate Research Assistant

September 2019 – December 2019

- Managed team of undergraduate researcher assistants under supervision of Dr. Michelle Bellino.
- Translated large dataset from Spanish and began qualitative data coding and analysis.
- Cleaned, organized, and analyzed quantitative data for initial report.

Frequency Dictionary of Spoken Hebrew (University of Texas)

Austin, Texas

Author (M.A. Thesis)

August 2017 – May 2018

- Planned, conducted, and wrote M.A. Thesis under supervision from Drs. Esther Raizen and Elaine Horwitz.
- Learned to wrangle massive data sets to extract valuable information using Python.

Dead Sea Scrolls Editions (Brigham Young University)

Provo, Utah

Research Assistant

September 2014 - August 2016

- Transcribed, reconstructed, dated, and analyzed biblical scrolls from cave 2Q at Qumran.
- Edited manuscripts for publication.

Jewish Pompeii Project (Brigham Young University)

Provo, Utah

Research Assistant

January 2015 - June 2015

- Carried out on-site research in Pompeii and the Naples Museum with research team.
- Contributed to findings that led to multiple peer-reviewed publications by the supervising faculty members.

Ad-Deir Monument Plateau Excavation (Brigham Young University)

Petra, Jordan

Student Excavator

January 2014 – June 2014

- Excavated as member of the archaeology field school team for the Ad-Deir Monument and Plateau Project.
- Transcribed and translated Nabataean coins as specialist in numismatics and language.

Teaching Experience

University of Illinois Urbana-Champaign

Urbana-Champaign, Illinois

Graduate Teaching Assistant

August 2020 – Present

- **EPOL 483:** *Learning Technologies* (Spring 2023)
- **CI 210:** *Introduction to Digital Learning Environments* (Fall 2022, Fall 2020)
- **CI 473:** *Disciplinary Literacy* (Spring 2022)
- **CI 439:** *Critiques of Educational Technology* (Spring 2022)
- **CI/EPSY 485:** *Assessing Student Performance* (Fall 2021)

University of Michigan

Ann Arbor, Michigan

Graduate Student Instructor

September 2019 – April 2020

- **EDUC 212:** *History of College Athletics* (Fall 2019, Winter 2020)

VIPKid

Online (Remote)

Teacher of English as a Foreign Language

May 2017 – August 2019

- *English as a Foreign Language*
- *Phonics*
- *TOEFL Primary Prep*

Oranim Academic College of Education

Kiryat Tiv'on, Israel

Fulbright English Teaching Assistant

October 2018 – June 2019

- *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

Austin, Texas

Graduate Teaching Assistant

August 2016 – May 2018

- **HEB 601C:** *Intensive Hebrew I* (Fall 2016, Fall 2017)
- **HEB 611C:** *Intensive Hebrew II* (Spring 2017, Spring 2018)

Brigham Young University

Provo, Utah

Teaching Assistant

- **HEB 131:** *Intensive Biblical Hebrew I* (Summer 2015)
- **HEB 132:** *Intensive Biblical Hebrew II* (Summer 2015)
- **ANES 201:** *Introduction to Ancient Near Eastern Studies* (Fall 2013)

Honors & Awards

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
2020–2023	**Illinois Distinguished Fellowship,** University of Illinois Urbana-Champaign
2020	**Summer Pre-Doctoral Institute Fellowship,** Graduate College, 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
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
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
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,** David M. Kennedy Center for International Studies, BYU

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

Extracurricular & Community Outreach

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

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

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

2023– **Technology Committee Member,** 2024 College of Education Graduate Student Conference

2023– **Executive Team Member,** (CU)rbanism Club

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

2009–2011 **Volunteer Representative,** The Church of Jesus Christ of Latter-day Saints

Technical Skills

Data Science Python (NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn, Keras, TensorFlow, PyTorch), R

Web Programming HTML, CSS, Javascript, Python, Hugo, Jekyll

Other Adobe Creative Cloud (Photoshop, Illustrator, XD), Git, LaTeX

Languages

Spanish Native

English Native

Hebrew Superior