Daniel Ritchie

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Researcher, developer, and educator creating responsible AI applications to promote equitable learning outcomes. Experienced in designing and deploying LLM-powered tools, leading cross-sector partnerships with schools and nonprofits, and mentoring emerging AI practitioners. Committed to leveraging AI for public impact.

EDUCATION

2026 (Expected) **Ph.D. in Education** (specialization: Digital Media)
University of California, Irvine
– Graduate Research Fellow, National Science Foundation (2023–2026)

2024 **M.A. in Education**
University of California, Irvine

2021 **B.S. in Computer Science, Minor in Education**
University of California, Davis
– University Honors (2017–2021)

EXPERIENCE

2023–Present **Researcher, User Experience & Development.** *Generative AI in Education,* UCI School of Education. PIs: Dr. Tamara Tate, Dr. Mark Warschauer

- Co-designed and iterated an **AI-powered classroom tutor application** used by 1,000+ middle school and undergraduate students across 40+ classrooms.
- Managed development team to translate research insights into **new features, design changes, and support materials**, ensuring real-world usability.
- Led mixed-method evaluations (interviews, observations, NLP-based analysis, discourse analysis) to **improve educational effectiveness and adoption**.

2021–2023 **Project Lead.** *CodeAI*, UCI School of Education.

- Led a small team to design and build **curriculum and digital tools for AI/data literacy**, deployed in schools and community programs.
- Managed **multi-stakeholder partnerships** across universities, school districts, and nonprofits.
- **Piloted prototypes** with 60+ middle school students in both in-school STEM electives and after-school programs.

2021–2023 **Researcher, Quantitative.** *Converse to Learn*, UCI School of Education. PIs: Dr. Mark Warschauer, Dr. Ying Xu

- Studied the effectiveness of an **AI-powered conversational agent** embedded in

children's media.

- Helped **refine agent design** by analyzing attention and learning outcomes in 200+ children (ages 3–7) through pre-/post-tests and automated video analysis.

2022 **Researcher, Quantitative.** *Capturing Online Instructor Practices Using Learning Management System Data,* UCI School of Education. PI: Dr. Di Xu

- Developed and tested metrics to model instructor behavior within learning management systems.
- Applied Python and SQL pipelines to clean, process, and analyze large-scale LMS datasets.

2021–2022 **Researcher, Mixed Methods.** *Scalable AI to Support Reading Comprehension,* UCI School of Education, IBM Research, University of Notre Dame. PI: Dr. Ying Xu

- Built a dataset of 10,000+ QA pairs from children's stories to train NLP models.
- Evaluated an **AI-driven storytelling chatbot**, conducting experiments with parent-child dyads.

LEADERSHIP & SERVICE

2023–Present ***Chair***. *AIforCA*, a project of CSforCA.

- Lead statewide initiative advancing **AI literacy and equitable computer science education** for California schools.
- Coordinate with educators, policymakers, and researchers to **develop resources, shape policy recommendations, and host public workshops** on responsible AI education.

2023–Present ***Member***. *Generative AI Advisory Board Committee*, Office of the Vice Provost for Teaching and Learning.

- Advise university leadership on **responsible adoption of generative AI in teaching and learning**.
- Provide guidance on **equity, ethics, and capacity-building** for instructors integrating AI tools into curricula.

GRANTS AND PUBLICATIONS

CO-AUTHORED GRANTS

- *Deploying an Argumentative Essay Feedback Algorithm with Middle School Teachers and Students*—The Learning Agency Lab (Oct 2024–May 2025)
- *PapyrusAI: An Intelligent Writing Coach for K–12 Schools*—UCI Beall Applied Innovation (Jan 2024–Jun 2024)

SELECTED PUBLICATIONS

Generative AI & Education

- **Ritchie, D.**, Tate, T., Zhang, Y., Werry, K., & Warschauer, M. (2025). Supporting middle school English teachers' AI literacy goals through a generative AI tutor. In Cristea, A.I., Walker, E., Lu, Y., Santos, O.C., Isotani, S. (Eds.), *Proceedings of the 26th International Conference on Artificial Intelligence in Education (AIED 2025) Part VI* (pp. 283–290). Springer. https://doi.org/10.1007/978-3-031-98465-5_36
- Tate, T. P., Harnick-Shapiro, B., **Ritchie, D.**, Tseng, W., Dennin, M., & Warschauer, M. (2025). Incorporating generative AI into a writing-intensive undergraduate course without off-loading learning. *Discover Computing, 28,* Article 72. https://doi.org/10.1007/s10791-025-09563-9
- Tate, T. P., Steiss, J., Bailey, D., Graham, S., Moon, Y., **Ritchie, D.**, Tseng, W., & Warschauer, M. (2024). Can AI provide useful holistic essay scoring? *Computers and Education: Artificial Intelligence*, *7*, Article 100255. https://doi.org/10.1016/j.caeai.2024.100255

AI for Learning & Literacy

- Ojeda-Ramirez, S., **Ritchie, D.**, & Warschauer, M. (2024). AI Literacy for Multilingual Learners: Storytelling, Role-playing, and Programming. *The CATESOL Journal*, 35(1). https://doi.org/10.5070/B5.35861
- Xu, Y., He, K., Levine, J., **Ritchie, D.**, Pan, Z., Bustamante, A., & Warschauer, M. (2024). Artificial intelligence enhances children's science learning from television shows. *Journal of Educational Psychology, 116*(7), 1071–1092. https://doi.org/10.1037/edu0000889

Datasets & Tools

- Xu, Y., Wang, D., Yu, M., **Ritchie, D.**, Yao, B., Wu, T., Zhang, Z., Li, T., Bradford, N., Sun, B., Hoang, T., Sang, Y., Hou, Y., Ma, X., Yang, D., Peng, N., Yu, Z., & Warschauer, M. (2022). Fantastic questions and where to find them: FairytaleQA— An authentic dataset for narrative comprehension. In S. Muresan, P. Nakov, & A. Villavicencio (Eds.), *Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics* (pp. 447–460). Association for Computational Linguistics. https://doi.org/10.18653/v1/2022.acl-long.34 [Equal Contributing 1st Author].
- Zhang, Z., Xu, Y., Wang Y., Yao, B., **Ritchie, D.**, Wu, T., Yu, M., Wang, D., & Li, T. (2022). Storybuddy: A human-AI collaborative agent for parent-child interactive storytelling. In S. Barbosa, C. Lampe, C. Appert, D. A. Shamma, S. Drucker, J. Williamson, & K. Yatani (Eds.), *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems* (Article 218). Association for Computing Machinery. https://doi.org/10.1145/3491102.3517479

TEACHING & MENTORSHIP EXPERIENCE

2023–2024 *Graduate Student Mentor.* Career Pathways: Learning Engineering and Data Science (CP-LEADS). UC Irvine.

- Mentored graduate students in applying AI and data science to education research, supporting professional development and technical skill-building.

2023–2024 *Learning Assistant*. University Studies 3: AI in Education First Year Seminar. UC Irvine.

- Supported instruction in a first-year seminar on AI in Education, helping undergraduates critically examine and apply generative AI tools.

2023–2024 *Guest Lecturer, Ethics in Learning Analytics.* Education 180: Special Topics in Education - Learning Analytics. UC Irvine.

- Delivered guest lectures on ethics in learning analytics, guiding students in understanding responsible data use and algorithmic fairness.

2021–2025 *Instructor*. Personal Website and HTML/CSS Programming Workshop for Education Researchers. UC Irvine.

- Designed and taught hands-on programming workshops to equip education researchers with foundational coding and web development skills for data visualization and dissemination.

PRESENTATIONS

Co-Designing Generative AI Tools for Equitable Classroom Integration. ISLS Annual Meeting, Helsinki, Finland (2025).

From Language to Algorithms: Integrating AI Literacy in Middle School Curricula. University of Tübingen LEAD Retreat, Germany (2024).

Preparing our Students With AI Literacy. Keynote, Ceibal National Conference on AI in Education, Montevideo, Uruguay (2023).

Promoting AI Literacy. LA County Office of Education AI Symposium, Los Angeles, CA (2023).

Promoting AI Literacy Through School-University Partnerships. California Charter School Association Annual Conference & AI K12 Deeper Learning Summit (2024).

Promoting Children's Science Learning With AI-Powered Media. AERA & SRCD Annual Meetings (2023).

TECHNICAL SKILLS

AI/ML & Data Science

- ***Large Language Models***: deployment (OpenAI API, Hugging Face), fine-tuning, prompt engineering
- ***NLP***: text classification, automated scoring, dataset creation, conversational agent design

- ***Machine Learning***: model evaluation, data wrangling, experimentation, A/B testing
- ***Libraries***: Pandas, NumPy, scikit-learn, PyTorch, NLTK

Programming & Development

- ***Languages***: Python, JavaScript, R, Java, C/C++, SQL, HTML/CSS
- ***Frameworks***: React, Node.js, Next.js, MaterialUI
- ***Tools***: Git, Unix, Excel, Vercel, AWS