ANNA L. TRELLA

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annatrella.github.io

EDUCATION

Department of Computer Science, Harvard University   Cambridge, MA
Ph.D. in Computer Science   2020 - 2025 *(expected)*
- Advisors: Prof. Susan A. Murphy and Prof. Finale Doshi-Velez
- GPA: 4.00/4.00.
- Research area: reinforcement learning (RL) and Bayesian machine learning (ML)

Department of Computer Science, Harvard University   Cambridge, MA
M.S. in Computer Science   2020 - 2024
- GPA: 4.00/4.00.
- Coursework: reinforcement learning, Bayesian machine learning, interpretable and explainable machine learning, probability theory

Department of Mathematics, University of California, Berkeley   Berkeley, CA
B.A. in Applied Mathematics   2014 - 2018
- GPA: 3.71/4.00.
- Coursework: machine learning, artificial intelligence, algorithms & theory, linear algebra, numerical analysis, etc.

EXPERIENCE

Applied Scientist Intern (RL & Large Language Models)
Amazon Alexa AI   Summer 2023

Research Scientist Intern (Data Science & Machine Learning)
Etsy   Summer 2021

Technical Lead: Software Development Engineer
Amazon   2018 - 2020

SKILLS

Programming: Python, Pytorch, NumPy, Git, PyMC3, Java, Amazon Web Services (AWS), Xcode, React Native, Objective-C, JavaScript, Kotlin

Languages: English (native), Chinese (native), Spanish (proficient), Japanese (limited proficient)

PATENTS

Miguel Roman Durazo Almeida, Thanhthanh Anh Tran, Jongun Jung, Rohin Patel, **Anna L. Trella**, Tarmandeep Toor, Shih-Ta Peng. *Item Identification based on receipt image.* U.S. Patent 11,257,049, filed January 31, 2020, and issued February 22, 2022.

TEACHING

Graduate Teaching Fellow, Harvard University
CS 181 Machine Learning (4.95/5.00 on student evaluations)   2022

Undergraduate Student Instructor, UC Berkeley
CS 61C Machine Structures (4.91/5.00 on student evaluations)   2017, 2018

AWARDS

- **Global Symposium on AI in Dentistry Scholarship**, Harvard University   2023
- **Derek Bok Certificate of Distinction in Teaching**, Harvard University   2022
- **RLDM Student Travel Fellowship**, Brown University   2022
- **EECS Outstanding Graduate Student Instructor Award**, UC Berkeley   2018
- **Dean's Honors List**, UC Berkeley   2016

Monitoring Fidelity of Reinforcement Learning Algorithms in Clinical Trials
Society for Clinical Trials, Annual Meeting   2024

Oralytics: An Online Reinforcement Learning Algorithm Supporting Oral Self-Care
Harvard University, Guest Lecturer for STAT 234: Sequential Decision-Making   2024

Reward Design for Online Reinforcement Learning Algorithms
Two Sigma Headquarters, PhD Symposium   2023

Designing Reinforcement Learning Algorithms for Digital Interventions
University of Pennsylvania, Ivy Collective Engineering Symposium   2022

Online Reinforcement Learning Algorithms for Mobile Health
mHealthHUB, mDOT Center Webinar Series   2022

PUBLICATIONS

1. **Anna L. Trella**, Kelly W. Zhang, Hinal Jajal, Inbal Nahum-Shani, Vivek Shetty, Finale Doshi-Velez, Susan A. Murphy. "A Deployed Online Reinforcement Learning Algorithm In An Oral Health Clinical Trial." *In Submission.*

2. **Anna L. Trella**, Ziming Li, Jinseok Nam, Puyang Xu. "Improving Personalization in Text Generation: A Two-Level Fine-Tuning Approach for LLMs." *In Submission.*

3. **Anna L. Trella**, Walter Dempsey, Ziping Xu, Finale Doshi-Velez, Susan A. Murphy. "Non-Stationary Latent Auto-Regressive Bandits." *In Submission.*

4. **Anna L. Trella**, Susobhan Ghosh, Erin E. Bonar, Lara Coughlin, Finale Doshi-Velez, Yongyi Guo, Pei-Yao Hung, Inbal Nahum-Shani, Vivek Shetty, Maureen Walton, Iris Yan, Kelly W. Zhang, Susan A. Murphy. "Effective Monitoring of Online Decision-Making Algorithms in Digital Intervention Implementation." *In Submission.*

5. **Anna L. Trella**, Kelly W. Zhang, Inbal Nahum-Shani, Vivek Shetty, Iris Yan, Finale Doshi-Velez, Susan A. Murphy. "Monitoring Fidelity of Online Reinforcement Learning Algorithms in Clinical Trials." *In Submission.*

6. Kelly W. Zhang, Nowell Closser, **Anna L. Trella**, Susan A. Murphy. "Replicable Bandits for Digital Health Interventions." *In Submission.*

7. Esmaeil Keyvanshokooh, Kyra Gan, Yongyi Guo, Xueqing Liu, **Anna L. Trella**, Susan A. Murphy. "Improving Treatment Responses through Limited Nudges: A Data-Driven Learning and Optimization Approach." *In Submission.*

8. Inbal Nahum-Shani, Zara M. Greer, **Anna L. Trella**, Kelly W. Zhang, Stephanie M. Carpenter, Dennis Ruenger, David Elashoff, Susan A. Murphy, Vivek Shetty. "Optimizing an adaptive digital oral health intervention for promoting oral self-care behaviors: Micro-randomized trial protocol." *Contemporary Clinical Trials*, 2024.

9. **Anna L. Trella**, Kelly W. Zhang, Inbal Nahum-Shani, Vivek Shetty, Finale Doshi-Velez, Susan A. Murphy. "Reward Design For An Online Reinforcement Learning Algorithm Supporting Oral Self-Care." *Proceedings of the 37th AAAI Conference on Artificial Intelligence (AAAI-23)*; selected for an oral, 2023.

10. **Anna L. Trella**, Kelly W. Zhang, Inbal Nahum-Shani, Vivek Shetty, Finale Doshi-Velez, Susan A. Murphy. "Designing Reinforcement Learning Algorithms for Digital Interventions: Pre-Implementation Guidelines." *Algorithms (Special Issue Algorithms in Decision Support Systems)*, 2022.
Preliminary version at *RLDM 2022 (Multi-disciplinary Conference on RL and Decision Making)*; selected for an oral (top 7% of accepted papers), 2022.

11. **Anna L. Trella**, Peniel N. Argaw, Michelle M. Li, James A. Hay. "Discrepancies in Epidemiological Modeling of Aggregated Heterogeneous Data." *IJCAI 2021 Workshop on Artificial Intelligence for Social Good*; selected for an oral, 2021.

ACADEMIC
SERVICES

Reviewer: *Reinforcement Learning Conference (RLC) 2024*
Innovative Applications of Artificial Intelligence (IAAI) 2024

HOBBIES

Figure Skating (Senior Moves in the Field Gold Medalist)
Cheerleading (NCA National Champion, 2x California State Champion)
Piano (Certificate of Merit Level 6)