

EDUCATION

Cornell University

Computer Science PhD Student, advised by Thorsten Joachims

Ithaca, NY

Aug. 2019 - present

Harvard College

A.B. Computer Science, cum laude, Departmental Honors

Cambridge, MA

Aug. 2012 - June 2016

PEER-REVIEWED PUBLICATIONS AND WORKING PAPERS

Aaron D. Tucker and Thorsten Joachims. “Variance-Optimal Augmentation Logging for Counterfactual Evaluation in Contextual Bandits” *in submission*, 2022. [pdf](#)

Aaron D. Tucker, Markus Anderljung, and Allan Dafoe. “Social and governance implications of improved data efficiency” *AAAI/ACM Conference on AI Ethics and Society*, 2020. [pdf](#)

Aaron D. Tucker, Adam Gleave, and Stuart Russell. “Inverse reinforcement learning for video games.” *Neural Information Processing Systems (NeurIPS) Deep Reinforcement Learning Workshop*, 2018. [pdf](#)

Scott W. Linderman, Aaron D. Tucker, and Matthew J. Johnson. “Bayesian latent state space models of neural activity.” *Computational and Systems Neuroscience (COSYNE) Abstracts*, 2016. [pdf](#)

INVITED AND CONTRIBUTED TALKS

“**Implications of Increased Data Efficiency**”, Future of Humanity Institute August 2019

“**Scaling Inverse RL**”, Future of Humanity Institute/Deepmind Joint AI Safety Seminar July 2019

“**Scaling Inverse RL**”, Center for Human Compatible AI Seminar October 2018

RESEARCH AND ACADEMIC EXPERIENCE

PhD Student, advised by Thorsten Joachims

Ithaca, NY

Cornell University

Aug. 2019 - present

- **Variance optimal augmentation logging:** Developed methods for optimally gathering additional data for offline policy evaluation, currently in submission.
- **Optimal information solicitation for human in the loop ML:** Working on project to develop methods for optimally gathering feedback on ML performance for use in challenging settings (such as content moderation) which lack automatic ground-truth measurements of algorithm performance.

Summer Fellow, Center for the Governance of AI

Oxford, UK

Future of Humanity Institute

June 2019 - Aug. 2019

- **Governance implications of data efficiency:** Investigated the impact of improved data efficiency on the AI governance landscape. This focused in particular on analyzing the market power of large data-rich actors, and on finding potentially consequential new application areas of ML in data-limited domains. Presented work in FHI seminar, and AI Ethics and Society Conference 2020.

Visiting Scholar, UC Berkeley

Berkeley, CA

Center for Human-Compatible Artificial Intelligence

June 2018 - Sept. 2018

- **Inverse reinforcement learning for video games:** Extended algorithms for inverse reinforcement learning to score in simple Atari games, which have a much higher dimensionality (order 10k rather than order 100) and more non-linear dynamics than the traditional settings in which they succeed. Presented work at NeurIPS 2018 Deep Reinforcement Learning Workshop and joint DeepMind/FHI Safety Seminar in July 2019.

PROFESSIONAL EXPERIENCE

Head Antifraud Engineer, Sendwave

New York, Boston

Remote

June 2016 – May 2019

Head Antifraud Engineer at [Sendwave](#), a Y Combinator backed money transfer start-up sending from the US, UK, and Canada to Kenya, Tanzania, Uganda, Ghana, and Nigeria, and the largest remitter to Kenya. Helped bring fraud from the company's biggest problem to under control, with a roughly 90% drop in loss rate, while maintaining a low review rate. Helped build Risk Team from its start (one teammate + me) to roughly 30 people over roughly 3 years.

- **Interim Risk Lead:** Set engineering roadmap, established priorities, and realized need for professionalizing antifraud support team for 5 months until longer-term hire with over 10 years experience was found. Company launched Nigeria corridor during this time.
- **Nigeria Antifraud:** No resulting major fraud loss incidents for the > 1 year remainder of my time at Wave.
- **Antifraud ML:** Built and deployed ML system for fraud classification from ground up.
- **Featurization Pipeline:** Built featurization pipeline to run at training and runtime from scratch.
- **Account Security and User Authentication:** Investigated hackings and implemented fixes bringing hacking incidents from a company-threatening level to rare and relatively minor.
- **Anomaly Detection:** Built production anomaly detection system from ground up. System automatically retunes expected rate parameters.
- **Onboarding Analyst:** Improved onboarding flow for UK users by improving data service integrations and finding weaknesses. Refactored onboarding logic for all users to be more streamlined and explicable.
- **Data Integrations:** Integrated with data providers to get risk information for users during the signup flow.
- **Customer Support Tooling:** Built MVP for antifraud representatives to look at user information, make decisions, and take necessary actions in a web app integrated into a broader customer service tool.

LEADERSHIP EXPERIENCE

Co-President, Harvard College Effective Altruism

previously Organizer, Philanthropy Fellow

Cambridge, MA

2012 – 2015

- Organized semester-long fellowships and speaker series
- Helped grow organization from 5 members to over 30 active, with over 100 alumni
- Group still active 5+ years later

President, FIRST Team 449

previously Vice President, Team Lead, Team Member

Silver Spring, MD

2007 – 2011

- Organized a team that builds a 120 pound robot in 6 weeks
- Helped grow team from 70 members to 100 members
- Redesigned pre-season training program to improve recruitment, retention, and team skill

TEACHING EXPERIENCE

Graduate Teaching Assistant, CS4700 Foundations of AI

Cornell University

Ithaca, NY

Fall 2019, Fall 2020

Graduate Teaching Assistant, CS1110 Introduction to Programming using Python

Cornell University

Ithaca, NY

Summer 2020

Teaching Fellow, CS181 Machine Learning

Harvard College

Cambridge, MA

Spring 2015

SERVICE

Secretary, Cornell Computer Science Graduate Organization

Fall 2021, Spring 2022

Reviewer, International Conference on Machine Learning

ICML 2022

Reviewer, NeurIPS Workshop on Human and Machine Decisions

WHMD 2021

Reviewer, ACM Special Interest Group on Knowledge Discovery and Data Mining

SIGKDD 2021, 2022

PhD Admissions Reader, Cornell Computer Science Department

2020