

# Aaron David Tucker

<https://www.cs.cornell.edu/~aarondtucker/>

aarondtucker@cs.cornell.edu

---

## EDUCATION

### Cornell University

Computer Science PhD Candidate, advised by Thorsten Joachims  
M.S. Computer Science

Ithaca, NY  
Aug. 2019 - present  
awarded Feb. 2023

### Harvard College

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

Cambridge, MA  
Aug. 2012 - June 2016

---

## PEER-REVIEWED PUBLICATIONS

Aaron D. Tucker. “Applying Torts to Juridical Persons: Corporate and AI Governance” *ICML Workshop on Generative AI and Law (GenLaw)*, 2023. [pdf](#)

Aaron D. Tucker, Caleb Biddulph\*, Claire Wang\*, and Thorsten Joachims. “Bandits with costly reward observations” *ACM Conference on Uncertainty in Artificial Intelligence*, 2023. [pdf](#)

Aaron D. Tucker and Thorsten Joachims. “Minimum variance augmentation logging for counterfactual evaluation in contextual Bandits” *ACM International Conference on Web Search and Data Mining*, 2023. [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

“**Bandits with Costly Reward Observations**”, TU Dortmund LS8 Lab December 2022

“**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 Candidate**, advised by Thorsten Joachims

Cornell University

Ithaca, NY  
Aug. 2019 - present

**Research Intern**, Microsoft Research

supervised by Jennifer Neville

Remote; Redmond, WA  
June 2022 - Sept. 2022

- **Off-policy estimation of network objectives:** Devised conditions and algorithm for evaluating the impact of recommendation policies on network connectivity objectives. Presented within Microsoft, paper forthcoming.

**Summer Fellow**, Center for the Governance of AI

Future of Humanity Institute

Oxford, UK  
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

Center for Human-Compatible Artificial Intelligence

Berkeley, CA  
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 – 2016

- Organized semester-long fellowships and speaker series
- Helped grow organization from 5 members to over 30 active, with over 100 alumni as of Dec. 2015
- Group still active 6+ 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 skills

## 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, Fall 2022

### Reader, Cornell CS Pre-application Support Program for underrepresented minority students

Fall 2021

### PhD Admissions Reader, Cornell Computer Science Department

2020 Admissions Cycle

### Reviewer, NeurIPS 2022, ICML 2022, SIGKDD 2021, SIGKDD 2022

2021, 2022

### Reviewer, NeurIPS Workshop on Human and Machine Decisions

WHMD 2021