Sam Lobel

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Education

Brown University — Providence, RI
Ph.D. in Computer Science, Candidate — 2019–Current

- Doctoral Advisor: George Konidaris
- Research Area: Sparse-Reward Reinforcement Learning
- Funded by the **NSF Graduate Research Fellowship**

University of Pennsylvania — Philadelphia, PA
B.A. in Physics and Astronomy, GPA: 3.7/4.0 — 2011–2015

- Minors: Mathematics, Computer Science

Conference Publications

1. Cameron Allen*, Aaron Kirkland*, Ruo Yu Tao*, **Sam Lobel**, Daniel Scott, Nicholas Petrocelli, Omer Gottesman, Ronald Parr, Michael Littman, George Konidaris. Mitigating Partial Observability in Decision Processes via the Lambda Discrepancy. *Neural Information Processing Systems (NeurIPS), 2024.*

2. **Sam Lobel**, Ronald Parr. An Optimal Tightness Bound for the Simulation Lemma. *Reinforcement Learning Conference (RLC), 2024.*

3. **Sam Lobel**, Akhil Bagaria, George Konidaris. Flipping Coins to Estimate Pseudocounts for Exploration in Reinforcement Learning. *International Conference on Machine Learning (ICML), 2023.* **Oral Presentation (top 3% of submissions)**

4. **Sam Lobel***, Sreehari Rammohon*, Bowen He*, Shangqun Yu, George Konidaris. Q-Functionals for Value-Based Continuous Control. *Association for the Advancement of Artificial Intelligence (AAAI), 2023.* **Oral Presentation (top 11% of submissions)**

5. Omer Gottesman, Kavosh Asadi, Cameron Allen, **Sam Lobel**, George Konidaris. Coarse-Grained Smoothness for Reinforcement Learning in Metric Spaces. *International Conference on Artificial Intelligence and Statistics (AISTAT), 2023.*

6. **Sam Lobel**, Akhil Bagaria, Cameron Allen, Omer Gottesman, George Konidaris. Optimistic Initialization for Exploration in Continuous Control. *Association for the Advancement of Artificial Intelligence (AAAI), 2022.*

7. **Sam Lobel***, Chunyuan Li*, Jianfeng Gao, Lawrence Carin. RACT: Towards Amortized Ranking-Critical Training for Collaborative Filtering. *International Conference on Learning Representations (ICLR), 2020.*

8. Matthew Gratale, Tim Still, Caitlin Matyas, Zoey Davidson, **Sam Lobel**, Peter Collings, Arjun Yodh. Tunable Depletion Potentials Driven by Shape Variation of Surfactant Micelles. *Physical Review E, 2016.*

Industry Experience

Sony Research, RL for Games Remote
Research Intern Summer 2024

- Developed and applied exploration methods within Sony's reinforcement learning framework. Improved agent performance in multiple challenging settings, in multiple Playstation games.

Metametrics Inc Durham, NC
Software Developer 2017 - 2019

- Performed a mixture of machine learning and backend web development. Developed a genre-categorizor using a private book-text dataset, an essay-scoring tool for standardized testing, and various interfaces for psychometric analysis of student data.

Forward Philadelphia Philadelphia, PA
Software Developer 2014 - 2017

- My first programming job. Advanced from internship to senior developer over course of hire. Automated collection and analysis of public property data from various Philadelphia government organizations, and created web interfaces for untangling complicated deed-ownership relations.

Invited Talks

- Oral Presentation of *Flipping Coins to Estimate Pseudocounts for Exploration in Reinforcement Learning* at ICML 2023. Recording Link.
- Presented in-progress work relating to the paper *Flipping Coins to Estimate Pseudocounts for Exploration in Reinforcement Learning* for an exploration group at Deepmind, London. August 2022
- Presented overview of *RACT: Towards Amortized Ranking-Critical Training for Collaborative Filtering* for Aggregate Intellect. *June, 2020*. Recording Link.

Teaching

- **PhD Programming Exam Coordinator** at Brown University 2020-2023
  Along with one faculty member, created and administered month-long programming portion of PhD Comprehensive Exams, a requirement for candidacy.
- **Volunteer Teacher And Coordinator** at Sayre High School (Philadelphia, PA) 2016-2017
  Created and independently taught the first programming course at a Philadelphia public school in a high-need Promise Zone. Mentored 6 seniors towards becoming proficient shell and Python programmers. Continued to advise one student as they entered college to study Computer Science.
- **Physics and Computer Science TA and Tutor** at University of Pennsylvania 2012-2015
  Worked as a teaching assistant or tutor for 5 consecutive semesters in both Physics and Computer Science. Acted as Head TA of the Physics Department's first experimental "flipped classroom" course.

Programming Skills

Language: Python. **ML Frameworks**: PyTorch, JAX, TensorFlow.
RL tools: Acme, PureJaxRL.

Relevant Coursework

Robust Machine Learning, Nonlinear Dynamical Systems, Algorithmic Game Theory, Probabilistic Methods, Statistical Learning Theory, Statistical Mechanics, Condensed Matter Physics, Introductory Robotics