

Bradly C. Stadie
Email: bstadie@northwestern.edu

Education

University of Chicago Chicago, IL
BA in Mathematics (Honors) September 2010 - June 2014

University of California, Berkeley Berkeley, CA
Ph.D in Statistics August 2014 - August 2018

Employment

Northwestern University, Department of Statistics and Data Science Evanston, USA
Assistant Professor September 2022 - Present

- Assistant professor in the Department of Statistics and Data Science at Northwestern University.

TTIC Chicago, USA
Research Assistant Professor September 2020 - August 2022

- Research Assistant Professor at the Toyota Technological Institute at Chicago.

Vector Institute Toronto, Canada
Postdoctoral Scholar August 2018 - July 2020

- Postdoctoral researcher at the Vector Institute at the University of Toronto

Open AI San Francisco, USA
Research Scientist March 2016 - November 2017

- Full-time research scientist at Open AI
- Advised by Ilya Sutskever

AI Expert at Y Combinator San Francisco, USA
Part-time Partner January 2017 - January 2018

- Advised Y Combinator on the latest trends in AI
- Advised over 50 startups on AI and ML problems

Young Scholars Program/SESAME Chicago, USA
Counselor June 2011 - May 2013

- Taught mathematics to Chicagoland high school students and CPS teachers
- Full-time during summers. Every Saturday and Sunday during school year
- Head counselor from June 2012 - May 2013

Conference Publications

Third-Person Imitation Learning

Bradly C. Stadie, Pieter Abbeel, Ilya Sutskever

In the proceedings of the International Conference on Learning Representations (ICLR), Toulon, France, April 2017

arXiv: <https://arxiv.org/pdf/1703.01703.pdf>

One-Shot Imitation Learning

Yan (Rocky) Duan, Marcin Andrychowicz, Bradly C. Stadie, Jonathan Ho, Jonas Schneider, Ilya Sutskever, Pieter Abbeel, Wojciech Zaremba

In Neural Information Processing Systems (NeurIPS), Long Beach, California, December 2017

arXiv: <https://arxiv.org/pdf/1703.07326.pdf>

Some Considerations on Learning to Explore via Meta-Reinforcement Learning

Bradly C. Stadie, Ge Yang, Rein Houthoofd, Xi Chen, Yan Duan, Yuhuai Wu, Pieter Abbeel, Ilya Sutskever
In Neural Information Processing Systems (NeurIPS), Montreal, Canada, December 2018
arXiv: <https://arxiv.org/pdf/1803.01118.pdf>

Evolved Policy Gradients

Rein Houthoofd, Richard Y. Chen, Phillip Isola, Bradly C. Stadie, Filip Wolski, Jonathan Ho, Pieter Abbeel
In Neural Information Processing Systems (NeurIPS) [Spotlight], Montreal, Canada, December 2018
arXiv: <https://arxiv.org/pdf/1802.04821.pdf>

One-Shot Pruning of Recurrent Neural Networks by Jacobian Spectrum Evaluation

Matthew Zhang, Bradly C. Stadie
In International Conference on Learning Representations (ICLR), Addis Ababa, Ethiopia, April 2020
arXiv: <https://arxiv.org/pdf/1912.00120.pdf>

Learning Intrinsic Rewards as a Bi-Level Optimization Problem

Lunjun Zhang, Bradly C. Stadie, Jimmy Ba
Conference on Uncertainty in Artificial Intelligence (UAI), July 2020. Available at: https://www.auai.org/uai2020/proceedings/66_main_paper.pdf

Maximum Entropy Gain Exploration for Long Horizon Multi-goal Reinforcement Learning

Harris Chan, Silviu Pitis, Stephen Zhao, Bradly C. Stadie, Jimmy Ba.
In International Conference on Machine Learning (ICML), July 2020. arXiv: <https://arxiv.org/abs/2007.02832>

World Model as a Graph: Learning Latent Landmarks for Planning

Lunjun Zhang, Ge Yang, Bradly C. Stadie
In International Conference on Machine Learning (ICML) [Long Presentation], July 2021. <https://arxiv.org/pdf/2011.12491.pdf>.

Invariance Through Latent Alignment

Takuma Yoneda, Ge Yang, Matthew Walter, Bradly C. Stadie
In Robotics: Science and Systems, July 2022. <https://invariance-through-latent-alignment.github.io/>

To the Noise and Back: Diffusion for Shared Autonomy

Takuma Yoneda, Luzhe Sun, Ge Yang, Bradly C. Stadie, Matthew Walter
In Robotics: Science and Systems, July 2023. Available at: <https://arxiv.org/pdf/2302.12244.pdf>

Cold Diffusion on the Replay Buffer: Learning to Plan from Known Good States

Z Wang, T Oba, T Yoneda, R Shen, M Walter, BC Stadie
In Conference on Robotic Learning, October 2023. Available at: <https://proceedings.mlr.press/v229/wang23e.html>

Workshop Publications

Incentivizing Exploration in Reinforcement Learning with Deep Predictive Models

Bradly C. Stadie, Sergey Levine, Pieter Abbeel
In Neural Information Processing Systems (NeurIPS) Deep RL Workshop, Montreal, Canada, December 2015
arXiv: <https://arxiv.org/pdf/1507.00814.pdf>

Transfer Learning for Estimating Causal Effects Using Neural Networks.

Bradly C. Stadie, Soeren R. Kuenzel, Nikita Vemuri, Varsha Ramakrishnan, Jasjeet S. Sekhon, Pieter Abbeel
INFORMS Annual Meeting ML and causal inference workshop (2019)
arXiv: <https://arxiv.org/pdf/1808.07804.pdf>

Learning to Learn from Flawed, Failed, and Figurative Demonstrations

Ge Yang, Bradly C. Stadie, Roberto Calandra, Pieter Abbeel, Sergey Levine, Chelsea Finn

In Neural Information Processing Systems (NeurIPS) Deep RL workshop [Spotlight], Montreal, Canada, December 2018.

Available at: <https://github.com/bstadie/All-Bradly-Stadie-Papers/blob/master/leaf.pdf>

Understanding Goal Relabeling Requires Rethinking Divergence Minimization

Lunjun Zhang, Bradly C. Stadie

NeurIPS 2022 Deep RL workshop. Submitted to ICML 2023. Available at: shorturl.at/ahQ69

Preprints

Simulating the Stochastic Dynamics and Cascade Failure of Power Networks

Charles Matthews, Bradly C. Stadie, Jonathan Weare, Mihai Anitescu, Christopher Demarco

Submitted to IEEE Transactions on Power Systems. Under Review.

arXiv: <https://arxiv.org/pdf/1806.02420.pdf>

One-Demonstration Imitation Learning

Bradly C. Stadie, Siyan Zhao, Qiqi Xu, Bonnie Li, Lunjun Zhang

Preprint. Available at: <https://github.com/bstadie/All-Bradly-Stadie-Papers/blob/master/one-demo.pdf>

D2AC: Distributional Actor Meets Denoising Critic

Lunjun Zhang and Bradly C. Stadie

Preprint. Submitted ICML 2024.

What Visual Foundation Model should we use in Robotics?

Ryan Chen and Bradly C. Stadie

Preprint. Submitted ICML 2024.

Selected Talks

- **Workshop: Foundation Models for Decision Making** Hindsight Divergence Minimization. December 2022.
- **Workshop: Deep Reinforcement Learning Workshop.** Hindsight Divergence Minimization. December 2022.
- **Toyota Technological Institute Japan Conference on Symbolic Neural Learning, Nagoya Japan, Invited Speaker (July 2022):** Making Sense of the Past with Hindsight Divergence Minimization
- **NSF EPSCoR Workshop: Artificial Intelligence With no Boundary Thinking, Invited Speaker (April 2022):** Making Sense of the Past with Hindsight Divergence Minimization
- **MSRI Hot Topics Workshop, Invited Speaker (March 2022):** Sim2Real Transfer in Robotics: Thoughts on Model Pruning and Robust Visual Transfer
- **Northwestern University (January 2022):** Towards Strong Generalization in Reinforcement Learning.
- **US Naval Academy (USNA) (January 2022):** Towards Strong Generalization in Reinforcement Learning.
- **UC Berkeley (October 2020):** Weakly Supervised Reinforcement Learning
- **Toyota Technological Institute, Chicago (March 2020):** Weakly Supervised Reinforcement Learning
- **Northwestern University invited speaker (October 2019):** Learning reward functions.
- **INFORMS panel on ML in causal inference (October 2019):** Transfer learning causal effects.
- **University of Illinois, Urbana Champaign (October 2019):** Learning reward functions.
- **Toyota Technological Institute, Chicago (May 2019):** Learning from imperfect data.
- **University of Wisconsin, Madison (April 2019):** Learning from imperfect data.
- **Purdue University (April 2019):** Learning from imperfect data.
- **University of Montreal (February 2018):** The relationship between sampling and meta learning.
- **University of Toronto (February 2018):** The relationship between sampling and meta learning.
- **Harvard University 2017 Big Data Conference, Invited Speaker (August 2017):** Frontiers of meta learning.
- **Open AI (March 2016):** Exploration in deep reinforcement learning.

Selected Teaching

- **Statistics 133: Concepts in Computing with Data.** Graduate Student Instructor. *Jan - May 2015*
- **Statistics 088: Introduction to Data Science.** Graduate Student Instructor. *Jan - May 2016*
- **TTIC 31170: Planning, Learning, and Estimation for Robotics and Artificial Intelligence.** Co-Instructor. *March 2021 - June 2021*
- **TTI, Nagoya Japan - Introduction to Artificial Intelligence and Machine learning.** Selected Lectures on Deep Learning. *July 2022*
- **Northwestern - Statistics 436: Introduction to Reinforcement Learning.** *September 2022 - December 2022*
- **Northwestern - Statistics 415: Introduction to Machine Learning.** *March 2023 - June 2023*
- **Northwestern - Statistics 355: Introduction to Generative AI.** *January 2024 - March 2024*