

Michael (Misha) Laskin

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EXPERIENCE

University of California, Berkeley

Sep. 2019 - Present

Postdoc, Advisor: Pieter Abbeel

Led deep unsupervised learning and reinforcement learning research in Pieter Abbeel's lab. In one year, wrote nine research papers, including five as a lead or co-lead author, and three as the primary advisor.

Published multiple papers in top-tier peer-reviewed venues including the proceedings of International Conference on Machine Learning (ICML) and Neural Information Processing Systems (NeurIPS).

Representative publications include (i) Contrastive Unsupervised Representations for Reinforcement Learning (CURL), (ii) Reinforcement Learning with Augmented Data (RAD), which were the *first RL algorithms to learn as data-efficiently from pixels as from coordinate state*, and (iii) a Framework for Efficient Robotic Manipulation (FERM), which *enabled robots to learn sparse-reward policies from pixels in just 30 minutes of training*.

Claire AI

Jan. 2017 - May 2019

Co-Founder & CTO

Designed and implemented algorithms to predict product demand for retailers. Raised \$1.75M in funding from Y Combinator (W17) and Salesforce Ventures. Secured and negotiated paid enterprise contracts with several Fortune 500 retailers, including Target, Kohl's, and Coach.

University of Chicago

Oct. 2013 - Dec. 2016

Ph.D. Candidate & Sydney Bloomenthal Fellow, Advisor: Paul Wiegmann

Discovered a new universal characteristic of the Fractional Quantum Hall Effect. Published papers in high-impact journals such as Physical Review Letters, including one featured as a PRL Editor's Suggestion. Received top Theoretical Physics Ph.D. student award, given annually to one student.

EDUCATION

University of Chicago

2013 - 2016

Department of Physics

Top Theoretical Physics Ph.D. student

Yale University

2008 - 2012

B.S. in Physics, B.A. in Literature

Graduated with honors

AWARDS

Sydney Bloomenthal Fellowship, Top Ph.D. student in Theoretical Physics, UChicago

Physical Science Prize for Excellence in Teaching, Top TA in the Physical Sciences, UChicago

NeurIPS Spotlight, top 3% of submissions, Reinforcement Learning with Augmented Data

PRL Editor's Suggestion, top 4% of submissions, Fractional Quantum Hall Effect in a Curved Space

Forbes 30 Under 30, Retail & E-commerce, Claire AI

Y Combinator, 1.5% acceptance rate, Claire AI

Calabrese Award, Best undergraduate thesis, Yale

COMMUNITY

Co-Organized NeurIPS 2020 Deep Reinforcement Learning Workshop with Pieter Abbeel, Coline Devin, Chelsea Finn, Kimin Lee, Joelle Pineau, Janarthanan Rajendran, David Silver, Satinder Singh, and Vivek Veeriah.

Open-sourced PyTorch code for CURL and RAD algorithms, extremely simple to set up and run.
Member of the UC Berkeley AI Ph.D. Admissions Committee for 2020

MENTORSHIP

Adam Stooke, Ph.D. at UC Berkeley, now at DeepMind
Wenling (Wendy) Shang, Ph.D. at University of Amsterdam, now at DeepMind
Catherine Cang, Undergraduate at UC Berkeley
Xiaofei Wang, Undergraduate at UC Berkeley
Albert Zhan, Undergraduate at UC Berkeley
Philip Zhao, Undergraduate at UC Berkeley

TEACHING

Abbeel Lab Reading Group: Organize weekly reading groups and mentor graduate and undergraduate student on their presentations, UC Berkeley
Advanced Mathematical Physics: Group Theory and Lie Algebras, Lecturer, University of Chicago
Introduction to Physics: Classical Physics, Teaching Assistant, University of Chicago
Introduction to Physics: Electricity and Magnetism, Teaching Assistant, University of Chicago
Statistical Physics, Teaching Assistant
Quantum Mechanics, Teaching Assistant, University of Chicago

GRANTS

Google / Berkeley Artificial Intelligence Research Commons (10pp): Local parametric learning rules for parallel and scalable training. **(funded)**
Office of Naval Research MURI (25pp): Cognitively-Inspired Compositional Learning for Safe, Fast, and Robust Control Systems. (Submitted)
National Science Foundation Future of Manufacturing (20pp): Pop-up Manufacturing with Intelligent Low-Cost Robots (Submitted)

MACHINE LEARNING PAPERS

Peer-Reviewed Publications

CURL: Contrastive Unsupervised Representations for Reinforcement Learning

Michael Laskin, Aravind Srinivas, Pieter Abbeel

Thirty-seventh International Conference on Machine Learning 2020

Reinforcement Learning with Augmented Data

Michael Laskin, Kimin Lee, Adam Stooke, Lerrel Pinto, Pieter Abbeel, Aravind Srinivas

Thirty-fourth Conference on Neural Information Processing Systems 2020, Spotlight (top 3% of submissions)

Sparse Graphical Memory for Robust Planning

Scott Emmons, Ajay Jain, **Michael Laskin**, Thanard Kurutach, Pieter Abbeel, Deepak Pathak

Thirty-fourth Conference on Neural Information Processing Systems 2020

Pre-prints

Parallel Training of Deep Networks with Local Updates

Michael Laskin, Luke Metz, Seth Nabarro, Mark Saroufim, Badreddine Noune, Carlo Luschi, Jascha Sohl-Dickstein, Pieter Abbeel, Submitted to ICLR 2021

Decoupling Representation Learning from Reinforcement Learning

Adam Stooke, Kimin Lee, Pieter Abbeel, **Michael Laskin**
Submitted to ICLR 2021, arXiv:2009.08319

Reinforcement Learning with Latent Flow

Wenling Shang, Xiaofei Wang, Aravind Rajeswaran, Aravind Srinivas, Yang Gao, Pieter Abbeel, **Michael Laskin**, Submitted to ICLR 2021

A Framework for Efficient Robotic Manipulation

Albert Zhan, Ruihan Zhao, Lerrel Pinto, Pieter Abbeel, **Michael Laskin**, Submitted to ICRA 2021

Weighted Bellman Backups for Improved Signal-to-Noise in Q-Updates

Kimin Lee, **Michael Laskin**, Aravind Srinivas, Pieter Abbeel
Submitted to ICLR 2021, arXiv:2007.04938

Discrete Representation Learning for Goal-Conditioned Visual Reinforcement Learning

Michael Laskin, Thanard Kurutach, Pieter Abbeel
NeurIPS Deep Reinforcement Learning Workshop 2019

PHYSICS PAPERS

Note: Authorship order is usually alphabetical in the Wiegmann theoretical physics group.

Peer-Reviewed Publications

*Emergent conformal symmetry and geometric transport properties
of quantum Hall states on singular surfaces*

Tankut Can, Yu Hung Chiu, **Michael Laskin**, Paul Wiegmann Physical review letters 117 (26), 266803, 2016

Population of the giant pairing vibration

Michael Laskin, Richard Casten, Augusto Macchiavelli, Roderick Clark, Dorel Bucurescu Physical Review C 93 (3), 034321, 2016

Collective field theory for quantum Hall states

Michael Laskin, Tankut Can, Paul Wiegmann Physical Review B 92 (23), 235141, 2015

Geometry of quantum Hall states:

Gravitational anomaly and transport coefficients

Tankut Can, **Michael Laskin**, Paul Wiegmann Annals of Physics 362, 752-794, 2015

Fractional quantum Hall effect in a curved space:

gravitational anomaly and electromagnetic response

Tankut Can, **Michael Laskin**, Paul Wiegmann Physical review letters 113 (4), 046803, 2014