

# Brandon Amos

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## Education

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Ph.D. in Computer Science, <i>Carnegie Mellon University</i> (0.00/0.00) Thesis: <i>Differentiable Optimization-Based Modeling for Machine Learning</i> Advisor: <a href="#">J. Zico Kolter</a>	2014–2019
B.S. in Computer Science, <i>Virginia Tech</i> (3.99/4.00)	2011–2014

## Positions

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Member of Technical Staff, <i>Reflection AI</i> , New York City	2025–
Research Scientist in FAIR, <i>Meta Superintelligence Labs</i> , New York City	2019–2025
Visiting Lecturer of Computer Science, <i>Cornell Tech</i> , New York City	2024
Research Assistant, <i>Carnegie Mellon University</i> (with <a href="#">J. Zico Kolter</a> on ML and optimization)	2016–2019
Research Intern, <i>Intel Labs</i> , Santa Clara (with <a href="#">Vladlen Koltun</a> on computer vision)	2018
Research Intern, <i>Google DeepMind</i> , London (with <a href="#">Nando de Freitas</a> and <a href="#">Misha Denil</a> on RL)	2017
Research Assistant, <i>Carnegie Mellon University</i> (with <a href="#">Mahadev Satyanarayanan</a> on mobile systems)	2014–2016
Research Intern, <i>Adobe Research</i> , San Jose (with <a href="#">David Tompkins</a> on distributed systems)	2014
Research Assistant, <i>Virginia Tech</i> (with <a href="#">Layne Watson</a> and <a href="#">David Easterling</a> on optimization)	2013–2014
Research Assistant, <i>Virginia Tech</i> (with <a href="#">Jules White</a> and <a href="#">Hamilton Turner</a> on mobile systems)	2012–2014
Research Assistant, <i>Virginia Tech</i> (with <a href="#">Binoy Ravindran</a> and <a href="#">Alastair Murray</a> on compilers)	2012–2014
Software Intern, <i>Snowplow</i> (Scala development)	2013–2014
Software Intern, <i>Qualcomm</i> , San Diego (Python and C++ development)	2013
Software Intern, <i>Phoenix Integration</i> , Virginia (C++, C#, and Java development)	2012
Network Administrator Intern, <i>Sunapsys</i> , Virginia	2011

## Honors & Awards

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AISTATS Best Reviewer	2025
Outstanding Paper Award at the ICML Theoretical Foundations Workshop	2024
NeurIPS Top Reviewer	2022
ICML Outstanding Reviewer	2022
ICLR Outstanding Reviewer	2019
Best Paper Award at ACM MMSys	2017
NSF Graduate Research Fellowship	2016–2019
Nine undergraduate scholarships	2011–2014

Roanoke County Public Schools Engineering, Salem–Roanoke County Chamber of Commerce, Papa John's, Scottish Rite of Freemasonry, VT Intelligence Community Center for Academic Excellence, VT Pamplin Leader, VT Benjamin F. Bock, VT Gay B. Shoher, VT I. Luck Gravett

## Publications [[Google Scholar](#): 12.7k+ citations and an h-index of 42]

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Selected publications I am a primary author on are **highlighted**.

2026.....

1. *Cultivating Pluralism In Algorithmic Monoculture: The Community Alignment Dataset*  
[Lily H Zhang](#), [Smitha Milli](#), [Karen Long Jusko](#), [Jonathan Smith](#), **Brandon Amos**, [Wassim Bouaziz](#),  
[Jack Kussman](#), [Manon Revel](#), [Lisa Titus](#), [Bhaktipriya Radharapu](#), [Jane Yu](#), [Vidya Sarma](#),  
[Kristopher Rose](#), and [Maximilian Nickel](#)  
ICLR 2026

2. *Score Function Gradient Estimation to Widen the Applicability of Decision-Focused Learning*  
Mattia Silvestri, Senne Berden, Jayanta Mandi, Ali İrfan Mahmutogulları, **Brandon Amos**, Tias Guns, and Michele Lombardi  
JAIR 2026
3. *The Surprising Difficulty of Search in Model-Based Reinforcement Learning*  
Wei-Di Chang, Mikael Henaff, **Brandon Amos**, Gregory Dudek, and Scott Fujimoto  
arXiv 2026

2025.....

4. *Online Intrinsic Rewards for Decision Making Agents from Large Language Model Feedback* `code`  
Qinqing Zheng, Mikael Henaff, Amy Zhang, Aditya Grover, and **Brandon Amos**  
RLC 2025
5. *AdvPrompter: Fast Adaptive Adversarial Prompting for LLMs* `code` `slides`  
Anselm Paulus\*, Arman Zharmagambetov\*, Chuan Guo, **Brandon Amos**<sup>†</sup>, and Yuandong Tian<sup>†</sup>  
ICML 2025
6. *Wasserstein Flow Matching: Generative modeling over families of distributions* `code`  
Doron Haviv, Aram-Alexandre Pooladian, Dana Pe'er, and **Brandon Amos**  
ICML 2025
7. *Adjoint Sampling: Highly Scalable Diffusion Samplers via Adjoint Matching* `code`  
Aaron Havens, Benjamin Kurt Miller, Bing Yan, Carles Domingo-Enrich, Anuroop Sriram, Brandon Wood, Daniel Levine, Bin Hu, **Brandon Amos**, Brian Karrer, Xiang Fu, Guan-Horng Liu, and Ricky T. Q. Chen  
ICML 2025
8. *Exact Byte-Level Probabilities from Tokenized Language Models for FIM-Tasks and Model Ensembles* `code`  
Buu Phan, **Brandon Amos**, Itai Gat, Marton Havasi, Matthew Muckley, and Karen Ullrich  
ICLR 2025
9. *Meta Flow Matching: Integrating Vector Fields on the Wasserstein Manifold* `code`  
Lazar Atanackovic, Xi Zhang, **Brandon Amos**, Mathieu Blanchette, Leo J Lee, Yoshua Bengio, Alexander Tong, and Kirill Neklyudov  
ICLR 2025
10. *AdvPrefix: An Objective for Nuanced LLM Jailbreaks*  
Sicheng Zhu, **Brandon Amos**, Yuandong Tian, Chuan Guo, and Ivan Evtimov  
NeurIPS 2025
11. *AlgoTune: Can Language Models Speed Up General-Purpose Numerical Programs?* `code`  
Ori Press, **Brandon Amos**, Haoyu Zhao, Yikai Wu, Samuel K. Ainsworth, Dominik Krupke, Patrick Kidger, Touqir Sajed, Bartolomeo Stellato, Jisun Park, Nathanael Bosch, Eli Meril, Albert Steppi, Arman Zharmagambetov, Fangzhao Zhang, David Pérez-Piñeiro, Alberto Mercurio, Ni Zhan, Talor Abramovich, Kilian Lieret, Hanlin Zhang, Shirley Huang, Matthias Bethge, and Ofir Press  
NeurIPS Datasets and Benchmarks Track 2025
12. *BaNEL: Exploration Posteriors for Generative Modeling Using Only Negative Rewards*  
Sangyun Lee, **Brandon Amos**, and Giulia Fanti  
arXiv 2025

13. *A Fully First-Order Layer for Differentiable Optimization* code  
 Zihao Zhao, Kai-Chia Mo, Shing-Hei Ho, **Brandon Amos**, and Kai Wang  
 arXiv 2025
  14. *Safety Alignment of LMs via Non-cooperative Games* code  
 Anselm Paulus, Iliia Kulikov, **Brandon Amos**, Rémi Munos, Ivan Evtimov, Kamalika Chaudhuri, and  
 Arman Zharmagambetov  
 arXiv 2025
- 2024.....
15. *Neural Optimal Transport with Lagrangian Costs* code  
 Aram-Alexandre Pooladian, Carles Domingo-Enrich, Ricky T. Q. Chen, and **Brandon Amos**  
 UAI 2024
  16. *Learning to Warm-Start Fixed-Point Optimization Algorithms* code  
 Rajiv Sambharya, Georgina Hall, **Brandon Amos**, and Bartolomeo Stellato  
 JMLR 2024
  17. *Unlocking Tokens as Data Points for Generalization Bounds on Larger Language Models* code  
 Sanae Lotfi, Yilun Kuang, Marc Anton Finzi, **Brandon Amos**, Micah Goldblum, and  
 Andrew Gordon Wilson  
 NeurIPS 2024
  18. *Stochastic Optimal Control Matching* code  
 Carles Domingo-Enrich, Jiequn Han, **Brandon Amos**, Joan Bruna, and Ricky T. Q. Chen  
 NeurIPS 2024
  19. *To the Globe (TTG): Towards Language-Driven Guaranteed Travel Planning*  
 Da JU, Song Jiang, Andrew Cohen, Aaron Foss, Sasha Mitts, Arman Zharmagambetov,  
**Brandon Amos**, Xian Li, Justine T Kao, Maryam Fazel-Zarandi, and Yuandong Tian  
 EMNLP Demo 2024
- 2023.....
20. *Tutorial on amortized optimization* code  
**Brandon Amos**  
 Foundations and Trends in Machine Learning 2023
  21. *On amortizing convex conjugates for optimal transport* code  
**Brandon Amos**  
 ICLR 2023
  22. *End-to-End Learning to Warm-Start for Real-Time Quadratic Optimization* code  
 Rajiv Sambharya, Georgina Hall, **Brandon Amos**, and Bartolomeo Stellato  
 L4DC 2023
  23. *Meta Optimal Transport* code  
**Brandon Amos**, Samuel Cohen, Giulia Luise, and Ievgen Redko  
 ICML 2023
  24. *Multisample Flow Matching: Straightening Flows with Minibatch Couplings*  
 Aram-Alexandre Pooladian, Heli Ben-Hamu, Carles Domingo-Enrich, **Brandon Amos**, Yaron Lipman,  
 and Ricky T. Q. Chen  
 ICML 2023

25. *Semi-Supervised Offline Reinforcement Learning with Action-Free Trajectories* [code](#)  
Qinqing Zheng, Mikael Henaff, **Brandon Amos**, and Aditya Grover  
ICML 2023
26. *TaskMet: Task-Driven Metric Learning for Model Learning* [code](#)  
Dishank Bansal, Ricky T. Q. Chen, Mustafa Mukadam, and **Brandon Amos**  
NeurIPS 2023
27. *Landscape Surrogate: Learning Decision Losses for Mathematical Optimization Under Partial Information* [code](#)  
Arman Zharmagambetov, **Brandon Amos**, Aaron Ferber, Taoan Huang, Bistra Dilkina, and Yuandong Tian  
NeurIPS 2023
28. *Koopman Constrained Policy Optimization: A Koopman operator theoretic method for differentiable optimal control in robotics* [code](#)  
Matthew Retchin, **Brandon Amos**, Steven Brunton, and Shuran Song  
ICML Differentiable Almost Everything Workshop 2023
- 2022.....
29. *Cross-Domain Imitation Learning via Optimal Transport* [code](#)  
Arnaud Fickinger, Samuel Cohen, Stuart Russell, and **Brandon Amos**  
ICLR 2022
30. *Matching Normalizing Flows and Probability Paths on Manifolds*  
Heli Ben-Hamu\*, Samuel Cohen\*, Joey Bose, **Brandon Amos**, Aditya Grover, Maximilian Nickel, Ricky T. Q. Chen, and Yaron Lipman  
ICML 2022
31. *Semi-Discrete Normalizing Flows through Differentiable Tessellation*  
Ricky T. Q. Chen, **Brandon Amos**, and Maximilian Nickel  
NeurIPS 2022
32. *Theseus: A Library for Differentiable Nonlinear Optimization* [code](#)  
Luis Pineda, Taosha Fan, Maurizio Monge, Shobha Venkataraman, Paloma Sodhi, Ricky Chen, Joseph Ortiz, Daniel DeTone, Austin Wang, Stuart Anderson, Jing Dong, **Brandon Amos**, and Mustafa Mukadam  
NeurIPS 2022
33. *Nocturne: a driving benchmark for multi-agent learning* [code](#)  
Eugene Vinitzky, Nathan Lichtlé, Xiaomeng Yang, **Brandon Amos**, and Jakob Foerster  
NeurIPS Datasets and Benchmarks Track 2022
- 2021.....
34. *On the model-based stochastic value gradient for continuous reinforcement learning* [code](#) [slides](#)  
**Brandon Amos**, Samuel Stanton, Denis Yarats, and Andrew Gordon Wilson  
L4DC 2021 (Oral)
35. *Riemannian Convex Potential Maps* [code](#) [slides](#)  
Samuel Cohen\*, **Brandon Amos\***, and Yaron Lipman  
ICML 2021

36. *CombOptNet: Fit the Right NP-Hard Problem by Learning Integer Programming Constraints* [code](#)  
Anselm Paulus, Michal Rolínek, Vít Musil, **Brandon Amos**, and Georg Martius  
ICML 2021
37. *Scalable Online Planning via Reinforcement Learning Fine-Tuning*  
Arnaud Fickinger, Hengyuan Hu, **Brandon Amos**, Stuart Russell, and Noam Brown  
NeurIPS 2021
38. *Aligning Time Series on Incomparable Spaces* [code](#) [slides](#)  
Samuel Cohen, Giulia Luise, Alexander Terenin, **Brandon Amos**, and Marc Peter Deisenroth  
AISTATS 2021
39. *Learning Neural Event Functions for Ordinary Differential Equations* [code](#)  
Ricky T. Q. Chen, **Brandon Amos**, and Maximilian Nickel  
ICLR 2021
40. *Neural Spatio-Temporal Point Processes* [code](#)  
Ricky T. Q. Chen, **Brandon Amos**, and Maximilian Nickel  
ICLR 2021
41. *Improving Sample Efficiency in Model-Free Reinforcement Learning from Images* [code](#)  
Denis Yarats, Amy Zhang, Ilya Kostrikov, **Brandon Amos**, Joelle Pineau, and Rob Fergus  
AAAI 2021
42. *Neural Fixed-Point Acceleration for Convex Optimization* [code](#)  
Shobha Venkataraman\* and **Brandon Amos\***  
ICML AutoML Workshop 2021
43. *Sliced Multi-Marginal Optimal Transport*  
Samuel Cohen, Alexander Terenin, Yannik Pitcan, **Brandon Amos**, Marc Peter Deisenroth, and  
K S Sesh Kumar  
NeurIPS OTML Workshop 2021
44. *Input Convex Gradient Networks*  
Jack Richter-Powell, Jonathan Lorraine, and **Brandon Amos**  
NeurIPS OTML Workshop 2021
45. *Imitation Learning from Pixel Observations for Continuous Control*  
Samuel Cohen, **Brandon Amos**, Marc Peter Deisenroth, Mikael Henaff, Eugene Vinitsky, and  
Denis Yarats  
NeurIPS DeepRL Workshop 2021
46. *MBRL-Lib: A Modular Library for Model-based Reinforcement Learning* [code](#)  
Luis Pineda, **Brandon Amos**, Amy Zhang, Nathan Lambert, and Roberto Calandra  
arXiv 2021
- 2020.....
47. *The Differentiable Cross-Entropy Method* [code](#) [slides](#)  
**Brandon Amos** and Denis Yarats  
ICML 2020
48. *Objective Mismatch in Model-based Reinforcement Learning*  
Nathan Lambert, **Brandon Amos**, Omry Yadan, and Roberto Calandra  
L4DC 2020

49. *QNSTOP: Quasi-Newton Algorithm for Stochastic Optimization* `code`  
**Brandon Amos**, David Easterling, Layne T. Watson, William Thacker, Brent Castle, and Michael Trosset  
ACM TOMS 2020
50. *Neural Potts Model*  
Tom Sercu, Robert Verkuil, Joshua Meier, **Brandon Amos**, Zeming Lin, Caroline Chen, Jason Liu, Yann LeCun, and Alexander Rives  
MLCB 2020
51. *Deep Riemannian Manifold Learning*  
Aaron Lou, Maximilian Nickel, and **Brandon Amos**  
NeurIPS Geo4dl Workshop 2020
- 2019.....
52. *Differentiable Optimization-Based Modeling for Machine Learning* `code`  
**Brandon Amos**  
Ph.D. Thesis 2019
53. *Differentiable Convex Optimization Layers* `code`  
Akshay Agrawal\*, **Brandon Amos\***, Shane Barratt\*, Stephen Boyd\*, Steven Diamond\*, and J. Zico Kolter\*  
NeurIPS 2019
54. *The Limited Multi-Label Projection Layer* `code`  
**Brandon Amos**, Vladlen Koltun, and J. Zico Kolter  
arXiv 2019
55. *Generalized Inner Loop Meta-Learning* `code`  
Edward Grefenstette, **Brandon Amos**, Denis Yarats, Phu Mon Htut, Artem Molchanov, Franziska Meier, Douwe Kiela, Kyunghyun Cho, and Soumith Chintala  
arXiv 2019
- 2018.....
56. *Learning Awareness Models*  
**Brandon Amos**, Laurent Dinh, Serkan Cabi, Thomas Rothörl, Sergio Gómez Colmenarejo, Alistair Muldal, Tom Erez, Yuval Tassa, Nando de Freitas, and Misha Denil  
ICLR 2018
57. *Differentiable MPC for End-to-end Planning and Control* `code`  
**Brandon Amos**, Ivan Dario Jimenez Rodriguez, Jacob Sacks, Byron Boots, and J. Zico Kolter  
NeurIPS 2018
58. *Depth-Limited Solving for Imperfect-Information Games*  
Noam Brown, Tuomas Sandholm, and **Brandon Amos**  
NeurIPS 2018
59. *Enabling Live Video Analytics with a Scalable and Privacy-Aware Framework*  
Junjue Wang, **Brandon Amos**, Anupam Das, Padmanabhan Pillai, Norman Sadeh, and Mahadev Satyanarayanan  
ACM TOMM 2018

2017.....

60. *OptNet: Differentiable Optimization as a Layer in Neural Networks* [code](#) [slides](#)  
**Brandon Amos** and J. Zico Kolter  
ICML 2017
61. *Input Convex Neural Networks* [code](#) [slides](#)  
**Brandon Amos**, Lei Xu, and J. Zico Kolter  
ICML 2017
62. *Task-based End-to-end Model Learning* [code](#)  
Priya L. Donti, **Brandon Amos**, and J. Zico Kolter  
NeurIPS 2017
63. *Quasi-Newton Stochastic Optimization Algorithm for Parameter Estimation of a Stochastic Model of the Budding Yeast Cell Cycle*  
Minghan Chen, **Brandon Amos**, Layne T. Watson, John Tyson, Yang Cao, Cliff Shaffer, Michael Trosset, Cihan Oguz, and Gisella Kakoti  
IEEE/ACM TCBB 2017
64. *You can teach elephants to dance: agile VM handoff for edge computing*  
Kiryong Ha, Yoshihisa Abe, Thomas Eiszler, Zhuo Chen, Wenlu Hu, **Brandon Amos**, Rohit Upadhyaya, Padmanabhan Pillai, and Mahadev Satyanarayanan  
SEC 2017
65. *An Empirical Study of Latency in an Emerging Class of Edge Computing Applications for Wearable Cognitive Assistance*  
Zhuo Chen, Wenlu Hu, Junjue Wang, Siyan Zhao, **Brandon Amos**, Guanhang Wu, Kiryong Ha, Khalid Elgazzar, Padmanabhan Pillai, Roberta Klatzky, Daniel Siewiorek, and Mahadev Satyanarayanan  
SEC 2017
66. *A Scalable and Privacy-Aware IoT Service for Live Video Analytics* [code](#)  
Junjue Wang, **Brandon Amos**, Anupam Das, Padmanabhan Pillai, Norman Sadeh, and Mahadev Satyanarayanan  
ACM MMSys 2017 (Best Paper)

2016.....

67. *OpenFace: A general-purpose face recognition library with mobile applications* [code](#)  
**Brandon Amos**, Bartosz Ludwiczuk, and Mahadev Satyanarayanan  
CMU 2016
68. *Image Completion with Deep Learning in TensorFlow* [code](#)  
**Brandon Amos**  
Blog 2016
69. *Collapsed Variational Inference for Sum-Product Networks*  
Han Zhao, Tameem Adel, Geoff Gordon, and **Brandon Amos**  
ICML 2016
70. *Quantifying the impact of edge computing on mobile applications*  
Wenlu Hu, Ying Gao, Kiryong Ha, Junjue Wang, **Brandon Amos**, Zhuo Chen, Padmanabhan Pillai, and Mahadev Satyanarayanan  
ACM SIGOPS 2016

71. *Privacy mediators: helping IoT cross the chasm*  
Nigel Davies, Nina Taft, Mahadev Satyanarayanan, Sarah Clinch, and **Brandon Amos**  
HotMobile 2016
- 2015 and earlier.....
72. *Edge Analytics in the Internet of Things*  
Mahadev Satyanarayanan, Pieter Simoons, Yu Xiao, Padmanabhan Pillai, Zhuo Chen, Kiryong Ha, Wenlu Hu, and **Brandon Amos**  
IEEE Pervasive Computing 2015
73. *Bad Parts: Are Our Manufacturing Systems at Risk of Silent Cyberattacks?*  
Hamilton Turner, Jules White, Jaime A. Camelio, Christopher Williams, **Brandon Amos**, and Robert Parker  
IEEE Security & Privacy 2015
74. *Early Implementation Experience with Wearable Cognitive Assistance Applications*  
Zhuo Chen, Lu Jiang, Wenlu Hu, Kiryong Ha, **Brandon Amos**, Padmanabhan Pillai, Alex Hauptmann, and Mahadev Satyanarayanan  
WearSys 2015
75. *The Case for Offload Shaping*  
Wenlu Hu, **Brandon Amos**, Zhuo Chen, Kiryong Ha, Wolfgang Richter, Padmanabhan Pillai, Benjamin Gilbert, Jan Harkes, and Mahadev Satyanarayanan  
HotMobile 2015
76. *Are Cloudlets Necessary?*  
Ying Gao, Wenlu Hu, Kiryong Ha, **Brandon Amos**, Padmanabhan Pillai, and Mahadev Satyanarayanan  
CMU 2015
77. *Adaptive VM handoff across cloudlets*  
Kiryong Ha, Yoshihisa Abe, Zhuo Chen, Wenlu Hu, **Brandon Amos**, Padmanabhan Pillai, and Mahadev Satyanarayanan  
CMU 2015
78. *Global Parameter Estimation for a Eukaryotic Cell Cycle Model in Systems Biology*  
Tricity Andrew, **Brandon Amos**, David Easterling, Cihan Oguz, William Baumann, John Tyson, and Layne T. Watson  
SummerSim 2014
79. *Applying machine learning classifiers to dynamic Android malware detection at scale* `code`  
**Brandon Amos**, Hamilton Turner, and Jules White  
IWCMC 2013

## Open Source Repositories

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39.5k+ GitHub stars across all repositories.

- |  |      |
|--|------|
| 1. oripress/AlgoTune   ★95   | 2025 |
| 2. facebookresearch/adjoint_sampling   ★131  | 2025 |
| 3. facebookresearch/oni   ★45   <i>Online LLM intrinsic rewards for NetHack</i>              | 2025 |
| 4. facebookresearch/advprompter   ★181   <i>Fast Adaptive Adversarial Prompting for LLMs</i> | 2024 |
| 5. facebookresearch/lagrangian-ot   ★62  | 2024 |
| 6. lazaratan/meta-flow-matching   ★72  | 2024 |
| 7. facebookresearch/soc-matching   ★40   <i>Stochastic Optimal Control Matching</i>          | 2024 |

8.	kuleshov/cornell-cs5785-2024-applied-ml   ★532   <i>Slides for our applied ML course</i>	2024
9.	facebookresearch/amortized-optimization-tutorial   ★249	2023
10.	facebookresearch/taskmet   ★19   <i>Task-Driven Metric Learning for Model Learning</i>	2023
11.	facebookresearch/w2ot   ★46   <i>Wasserstein-2 optimal transport</i>	2023
12.	facebookresearch/LANCER   ★37   <i>Landscape Surrogate Learning Decision Losses</i>	2023
13.	facebookresearch/theseus   ★2k   <i>Differentiable non-linear optimization library</i>	2022
14.	facebookresearch/meta-ot   ★108	2022
15.	bamos/presentations   ★141	2022
16.	facebookresearch/gwil   ★25   <i>Gromov-Wasserstein Cross Domain Imitation Learning</i>	2022
17.	facebookresearch/nocturne   ★296   <i>A partially-observable multi-agent driving simulator</i>	2022
18.	facebookresearch/rcpm   ★67   <i>Riemannian Convex Potential Maps</i>	2021
19.	facebookresearch/svg   ★57   <i>Model-based stochastic value gradient</i>	2021
20.	facebookresearch/mbrl-lib   ★1.1k   <i>Model-based reinforcement learning library</i>	2021
21.	martius-lab/CombOptNet   ★74	2021
22.	samcohen16/Aligning-Time-Series   ★50   <i>Aligning time series on incomparable spaces</i>	2021
23.	facebookresearch/neural_stpp   ★107   <i>Neural Spatio-Temporal Point Processes</i>	2021
24.	facebookresearch/neural-scs   ★30   <i>Neural Fixed-Point Acceleration for SCS</i>	2021
25.	rtqichen/torchdiffeq   ★6.4k   <i>PyTorch Differentiable ODE Solvers (differentiable event handling)</i>	2021
26.	facebookresearch/dcem   ★125   <i>The Differentiable Cross-Entropy Method</i>	2020
27.	facebookresearch/higher   ★1.6k   <i>PyTorch higher-order gradient and optimization library</i>	2019
28.	bamos/thesis   ★347   <i>Ph.D. Thesis LaTeX source code</i>	2019
29.	cvxgrp/cvxpylayers   ★2.1k   <i>Differentiable Convex Optimization Layers</i>	2019
30.	locuslab/lml   ★59   <i>The Limited Multi-Label Projection Layer</i>	2019
31.	locuslab/mpc.pytorch   ★1k   <i>Differentiable PyTorch Model Predictive Control library</i>	2018
32.	locuslab/differentiable-mpc   ★323	2018
33.	locuslab/icnn   ★313   <i>Input Convex Neural Network experiments</i>	2017
34.	locuslab/optnet   ★579	2017
35.	locuslab/qpth   ★786   <i>Differentiable PyTorch QP solver</i>	2017
36.	bamos/densenet.pytorch   ★842	2017
37.	bamos/block   ★310   <i>Intelligent block matrix constructions</i>	2017
38.	bamos/setGPU   ★111   <i>Automatically use the least-loaded GPU</i>	2017
39.	bamos/dcgan-completion.tensorflow   ★1.3k   <i>Image completion with GANs</i>	2016
40.	cmusatyalab/openface   ★15.4k   <i>Face recognition with deep neural networks</i>	2015
41.	bamos/girl   ★71   <i>GitHub README link checker</i>	2015
42.	bamos/conference-tracker   ★71	2015
43.	vtopt/qnstop   ★11   <i>Fortran quasi-Newton stochastic optimization library</i>	2014
44.	bamos/snowglobe   ★28   <i>Haskell-driven, self-hosted web analytics</i>	2014
45.	bamos/zsh-history-analysis   ★241	2014
46.	bamos/beamer-snippets   ★111	2014
47.	bamos/latex-templates   ★369	2013
48.	cparse/cparse   ★361   <i>C++ expression parser using Dijkstra's shunting-yard algorithm</i>	2013
49.	bamos/cv   ★419   <i>Source for this CV: creates LaTeX/Markdown from YAML/BibTeX</i>	2013
50.	bamos/parsec-benchmark   ★131   <i>PARSEC benchmark support for Arch Linux</i>	2013
51.	bamos/python-scripts   ★195	2013
52.	bamos/reading-list   ★186   <i>YAML reading list and notes system</i>	2013
53.	bamos/dotfiles   ★237   ♥ <i>Linux, xmonad, emacs, vim, zsh, tmux</i>	2012

## Invited Talks

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Slides for my major presentations are available [here](#) under a CC-BY license.

1. <i>On prompt optimization and coding agents</i> • Columbia NLP Seminar	2026
2. <i>On prompt optimization and coding agents</i> • Cornell Tech ML Reading Group	2026
3. <i>On prompt optimization and coding agents</i> • Tel Aviv University	2026
4. <i>On prompt optimization and coding agents</i> • Princeton PLI Seminar	2026
5. <i>On prompt optimization and coding agents</i> • Netflix	2026
6. <i>On prompt optimization and coding agents</i> • NeurIPS ScaleOPT Workshop	2025
7. <i>Language model alignment and tool use</i> • Cornell Tech CS5785 Guest Lecture	2025
8. <i>On transport, flows, and physics</i> • The Physics of John Hopfield Workshop at Princeton University	2025
9. <i>Demystifying language models</i> • ICT Dumaguete Seminar	2025
10. <i>On prompt optimization and coding agents</i> • Flatiron ML Seminar	2025
11. <i>AdvPrompter: Fast Adaptive Adversarial Prompting for LLMs</i> • USC	2025
12. <i>On amortized optimization for RL, Bayesian optimization, and biology</i> • ai4b.io	2025
13. <i>Transport and flows between distributions over distributions</i> • Columbia University	2025
14. <i>Transport and flows between distributions over distributions</i> • Genesis Therapeutics	2024
15. <i>Transport and flows between distributions over distributions</i> • UT Austin	2024
16. <i>On LLM prompt optimization and amortization</i> • Dagstuhl Seminar on ML for CO	2024
17. <i>Amortized optimization for optimal transport and LLM attacks</i> • ISMP	2024
18. <i>Differentiable optimization for robotics</i> • RSS Optimization for Robotics Workshop	2024
19. <i>Amortized optimization-based reasoning for AI</i> • University of Amsterdam	2024
20. <i>End-to-end learning geometries for graphs, dynamical systems, and regression</i> • LoG New York	2024
21. <i>Amortized optimization for optimal transport</i> • NeurIPS Optimal Transport and ML Workshop	2023
22. <i>On optimal control and machine learning</i> • ICML Control and Dynamical Systems Workshop	2023
23. <i>Tutorial on amortized optimization</i> • Brown University	2023
24. <i>Learning with differentiable and amortized optimization</i> • NYU AI Seminar	2023
25. <i>Learning with differentiable and amortized optimization</i> • Vanderbilt ML Seminar	2023
26. <i>Learning with differentiable and amortized optimization</i> • Microsoft Research	2022
27. <i>Amortized optimization for computing optimal transport maps</i> • Flatiron Workshop	2022
28. <i>Learning with differentiable and amortized optimization</i> • Cornell AI Seminar	2022
29. <i>Learning with differentiable and amortized optimization</i> • Cornell Tech Seminar	2022
30. <i>Learning with differentiable and amortized optimization</i> • Argonne National Laboratory	2022
31. <i>Theseus: A library for differentiable nonlinear optimization</i> • NYU	2022
32. <i>Theseus: A library for differentiable nonlinear optimization</i> • University of Zurich	2022
33. <i>Differentiable optimization-based modeling for machine learning</i> • Colorado Mines AMS Colloquium	2022
34. <i>Differentiable optimization</i> • IJCAI Tutorial	2022
35. <i>Differentiable optimization for control and RL</i> • ICML Workshop on Decision Awareness in RL	2022
36. <i>Differentiable optimization-based modeling for machine learning</i> • CPAIOR Master Class	2022
37. <i>Tutorial on amortized optimization</i> • ICCOPT	2022
38. <i>Differentiable optimization for control and RL</i> • Gridmatic	2022
39. <i>Learning for control with differentiable optimization and ODEs</i> • Columbia University	2021
40. <i>Differentiable optimization-based modeling for machine learning</i> • IBM Research	2021
41. <i>Differentiable optimization for control</i> • Max Planck Institute (Tübingen)	2020
42. <i>Differentiable optimization-based modeling for machine learning</i> • Mila Seminar	2020
43. <i>Deep Declarative Networks</i> • ECCV Tutorial	2020
44. <i>On differentiable optimization for control and vision</i> • CVPR Deep Declarative Networks Workshop	2020
45. <i>Differentiable optimization-based modeling for machine learning</i> • Caltech CS159 Guest Lecture	2020
46. <i>Unrolled optimization for learning deep energy models</i> • SIAM MDS Minisymposium	2020
47. <i>Differentiable optimization-based modeling for machine learning</i> • NYU CILVR Seminar	2019
48. <i>Differentiable optimization-based modeling for machine learning</i> • INFORMS	2019
49. <i>Differentiable optimization-based modeling for machine learning</i> • Facebook AI Research	2019
50. <i>Differentiable optimization-based modeling for machine learning</i> • ISMP	2018
51. <i>Differentiable optimization-based modeling for machine learning</i> • Google Brain	2018

52. <i>Differentiable optimization-based modeling for machine learning</i> • Bosch Center for AI	2018
53. <i>Differentiable optimization-based modeling for machine learning</i> • Waymo Research	2018
54. <i>Differentiable optimization-based modeling for machine learning</i> • Tesla AI	2018
55. <i>Differentiable optimization-based modeling for machine learning</i> • NVIDIA Robotics	2018
56. <i>Differentiable optimization-based modeling for machine learning</i> • Salesforce Research	2018
57. <i>Differentiable optimization-based modeling for machine learning</i> • OpenAI	2018
58. <i>Differentiable optimization-based modeling for machine learning</i> • NNAISENSE	2018
59. <i>Differentiable optimization and control</i> • UC Berkeley	2018

## Interns and Students

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Kathy Zhou (visiting FAIR from NYU)	2025
Ulyana Piterberg (visiting FAIR from NYU)	2025
Ollie Liu (visiting FAIR from USC)	2025
Doron Haviv (MSKCC PhD committee, now at Genentech)	2025
Aaron Havens (visiting FAIR from UIUC, now postdoc at FAIR)	2024–2025
Aram-Alexandre Pooladian (visiting FAIR from NYU, now at Yale)	2022–2024
Carles Domingo-Enrich (visiting FAIR from NYU, now at MSR)	2022–2024
Anselm Paulus (visiting FAIR from Max Planck Institute, Tübingen)	2023–2024
Matthew Retchin (Columbia MS thesis committee, now at Harvard)	2023
Sanae Lotfi (visiting FAIR from NYU, now scientist at FAIR)	2022–2023
Dishank Bansal (AI resident at FAIR, now at the UK AI Safety Institute)	2022–2023
Arnaud Fickinger (visiting FAIR from Berkeley)	2021–2022
Aaron Lou (visiting FAIR from Cornell and Stanford, now scientist at OpenAI)	2020–2022
Eugene Vinitsky (visiting FAIR from Berkeley, now professor at NYU)	2021–2022
Samuel Cohen (visiting FAIR from UCL, now CEO at FairGen)	2021–2022
Ricky Chen (visiting FAIR from Toronto, now scientist at FAIR)	2020
Paul Liang (visiting FAIR from CMU, now professor at MIT)	2020
Phillip Wang (at CMU, now CEO at Gather)	2018

## Professional Activities

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NeurIPS Learning Meets Combinatorial Optimization Workshop Organizer	2020
CVPR Deep Declarative Networks Workshop Organizer	2020
ECCV Deep Declarative Networks Tutorial Organizer	2020
CMU CSD MS Admissions	2014–2015

### Area Chair.....

- Artificial Intelligence and Statistics (AISTATS)
- Association for the Advancement of Artificial Intelligence (AAAI)
- International Conference on Learning Representations (ICLR)
- International Conference on Machine Learning (ICML)
- Neural Information Processing Systems (NeurIPS)
- Neural Information Processing Systems (NeurIPS) Datasets and Benchmarks

### Reviewer.....

- American Controls Conference (ACC)
- Artificial Intelligence and Statistics (AISTATS)
- Association for the Advancement of Artificial Intelligence (AAAI)

IEEE Conference on Computer Vision and Pattern Recognition (CVPR)  
 IEEE Conference on Decision and Control (CDC)  
 IEEE Control Systems Letters (L-CSS)  
 IEEE International Conference on Computer Vision (ICCV)  
 IEEE International Conference on Intelligent Robots and Systems (IROS)  
 IEEE International Conference on Robotics and Automation (ICRA)  
 International Conference on Learning Representations (ICLR)  
 International Conference on Learning Representations (ICLR) Blog Posts  
 International Conference on Machine Learning (ICML)  
 International Conference on Machine Learning (ICML) SODS Workshop  
 International Conference on the Constraint Programming, AI, and Operations Research (CPAIOR)  
 Journal of Machine Learning Research (JMLR)  
 Learning for Dynamics and Control (L4DC)  
 Mathematical Programming Computation (MPC)  
 Neural Information Processing Systems (NeurIPS)  
 Neural Information Processing Systems (NeurIPS) Datasets and Benchmarks Track  
 Neural Information Processing Systems (NeurIPS) Deep RL Workshop  
 Neural Information Processing Systems (NeurIPS) DiffCVGP Workshop  
 Neural Information Processing Systems (NeurIPS) OPT Workshop  
 Optimization Letters  
 Transactions on Machine Learning Research (TMLR)  
 Uncertainty in Artificial Intelligence (UAI)

## Teaching

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<b>Applied Machine Learning</b> , <i>Cornell Tech CS5785</i> , Co-instructor	F2024
<b>Graduate AI</b> , <i>CMU 15-780</i> , TA	S2017
<b>Distributed Systems</b> , <i>CMU 15-640</i> , TA	S2016
<b>Software Design and Data Structures</b> , <i>VT CS2114</i> , TA	S2013

## Skills

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**Programming** C, C++, Fortran, Haskell, Java, Lua, Make, Mathematica, Python, R, Scala  
**Frameworks** JAX, NumPy, Pandas, PyTorch, SciPy, TensorFlow, Torch7  
**Toolbox** Linux, emacs, vim, evil, org, mu4e, xmonad, git, tmux, zsh