

# Brandon Amos

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## Current Positions

**Research Scientist**, *Meta, Fundamental AI Research (FAIR)*, New York City 2019 – Present  
**Visiting Lecturer**, *Cornell Tech*, New York City 2024 – Present

## Education

**Ph.D. in Computer Science**, *Carnegie Mellon University* (0.00/0.00) 2014 – 2019  
Thesis: [Differentiable Optimization-Based Modeling for Machine Learning](#)  
Advisor: [J. Zico Kolter](#)

**B.S. in Computer Science**, *Virginia Tech* (3.99/4.00) 2011 – 2014

## Previous Positions

**Research Assistant**, *Carnegie Mellon University* (with [J. Zico Kolter](#) on ML and optimization) 2016 – 2019  
**Research Intern**, *Intel Labs*, Santa Clara (with [Vladlen Koltun](#) on computer vision) 2018  
**Research Intern**, *Google DeepMind*, London (with [Nando de Freitas](#) and [Misha Denil](#) on RL) 2017  
**Research Assistant**, *Carnegie Mellon University* (with [Mahadev Satyanarayanan](#) on mobile systems) 2014 – 2016  
**Research Intern**, *Adobe Research*, San Jose (with [David Tompkins](#) on distributed systems) 2014  
**Research Assistant**, *Virginia Tech* (with [Layne Watson](#) and [David Easterling](#) on optimization) 2013 – 2014  
**Research Assistant**, *Virginia Tech* (with [Jules White](#) and [Hamilton Turner](#) on mobile systems) 2012 – 2014  
**Research Assistant**, *Virginia Tech* (with [Binoy Ravindran](#) and [Alastair Murray](#) on compilers) 2012 – 2014  
**Software Intern**, *Snowplow* (Scala development) 2013 – 2014  
**Software Intern**, *Qualcomm*, San Diego (Python and C++ development) 2013  
**Software Intern**, *Phoenix Integration*, Virginia (C++, C#, and Java development) 2012  
**Network Administrator Intern**, *Sunapsys*, Virginia 2011

## Honors & Awards

[NeurIPS Top Reviewer](#) 2022  
[ICML Outstanding Reviewer](#) 2022  
[ICLR Outstanding Reviewer](#) 2019  
[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. Shober, VT I. Luck Gravett

## Publications [Google Scholar: 9.1k+ citations and an h-index of 38]

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

2024.....

1. [AdvPrompter: Fast Adaptive Adversarial Prompting for LLMs](#) [code]  
[Anselm Paulus\\*](#), [Arman Zharmagambetov\\*](#), [Chuan Guo](#), **Brandon Amos<sup>†</sup>**, and [Yuandong Tian<sup>†</sup>](#)  
arXiv 2024

2. [Neural Optimal Transport with Lagrangian Costs](#) [code]  
Aram-Alexandre Pooladian, Carles Domingo-Enrich, Ricky T. Q. Chen, and **Brandon Amos**  
UAI 2024
  3. [Learning to Warm-Start Fixed-Point Optimization Algorithms](#) [code]  
Rajiv Sambharya, Georgina Hall, **Brandon Amos**, and Bartolomeo Stellato  
JMLR 2024
  4. [Unlocking Tokens as Data Points for Generalization Bounds on Larger Language Models](#)  
Sanae Lotfi, Yilun Kuang, Marc Anton Finzi, **Brandon Amos**, Micah Goldblum, and Andrew Gordon Wilson  
NeurIPS 2024
  5. [Stochastic Optimal Control Matching](#) [code]  
Carles Domingo-Enrich, Jiequn Han, **Brandon Amos**, Joan Bruna, and Ricky T. Q. Chen  
NeurIPS 2024
  6. [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  
ICML GRaM Workshop 2024
  7. [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
  8. [Score Function Gradient Estimation to Widen the Applicability of Decision-Focused Learning](#)  
Mattia Silvestri, Senne Berden, Jayanta Mandi, Ali İrfan Mahmutoğulları, **Brandon Amos**, Tias Guns, and Michele Lombardi  
arXiv 2024
  9. [Exact Byte-Level Probabilities from Tokenized Language Models for FIM-Tasks and Model Ensembles](#)  
Buu Phan, **Brandon Amos**, Itai Gat, Marton Havasi, Matthew Muckley, and Karen Ullrich  
arXiv 2024
  10. [Online Intrinsic Rewards for Decision Making Agents from Large Language Model Feedback](#)  
Qinqing Zheng, Mikael Henaff, Amy Zhang, Aditya Grover, and **Brandon Amos**  
arXiv 2024
  11. [Wasserstein Flow Matching: Generative modeling over families of distributions](#) [code]  
Doron Haviv, Aram-Alexandre Pooladian, Dana Pe'er, and **Brandon Amos**  
arXiv 2024
- 2023.....
12. [Tutorial on amortized optimization](#) [code]  
**Brandon Amos**  
Foundations and Trends in Machine Learning 2023
  13. [On amortizing convex conjugates for optimal transport](#) [code]  
**Brandon Amos**  
ICLR 2023

14. *End-to-End Learning to Warm-Start for Real-Time Quadratic Optimization* [code]  
Rajiv Sambharya, Georgina Hall, **Brandon Amos**, and Bartolomeo Stellato  
L4DC 2023
15. *Meta Optimal Transport* [code]  
**Brandon Amos**, Samuel Cohen, Giulia Luise, and Ievgen Redko  
ICML 2023
16. *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
17. *Semi-Supervised Offline Reinforcement Learning with Action-Free Trajectories*  
Qinqing Zheng, Mikael Henaff, **Brandon Amos**, and Aditya Grover  
ICML 2023
18. *TaskMet: Task-Driven Metric Learning for Model Learning* [code]  
Dishank Bansal, Ricky T. Q. Chen, Mustafa Mukadam, and **Brandon Amos**  
NeurIPS 2023
19. *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
20. *Koopman Constrained Policy Optimization: A Koopman operator theoretic method for differentiable optimal control in robotics*  
Matthew Retchin, **Brandon Amos**, Steven Brunton, and Shuran Song  
ICML Differentiable Almost Everything Workshop 2023

2022.....

21. *Cross-Domain Imitation Learning via Optimal Transport* [code]  
Arnaud Fickinger, Samuel Cohen, Stuart Russell, and **Brandon Amos**  
ICLR 2022
22. *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
23. *Semi-Discrete Normalizing Flows through Differentiable Tessellation*  
Ricky T. Q. Chen, **Brandon Amos**, and Maximilian Nickel  
NeurIPS 2022
24. *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
25. *Nocturne: a driving benchmark for multi-agent learning* [code]  
Eugene Vinitsky, Nathan Lichtlé, Xiaomeng Yang, **Brandon Amos**, and Jakob Foerster  
NeurIPS Datasets and Benchmarks Track 2022

2021.....

26. *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)
27. *Riemannian Convex Potential Maps* [code] [slides]  
Samuel Cohen\*, **Brandon Amos\***, and Yaron Lipman  
ICML 2021
28. *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
29. *Scalable Online Planning via Reinforcement Learning Fine-Tuning*  
Arnaud Fickinger, Hengyuan Hu, **Brandon Amos**, Stuart Russell, and Noam Brown  
NeurIPS 2021
30. *Aligning Time Series on Incomparable Spaces* [code] [slides]  
Samuel Cohen, Giulia Luise, Alexander Terenin, **Brandon Amos**, and Marc Peter Deisenroth  
AISTATS 2021
31. *Learning Neural Event Functions for Ordinary Differential Equations* [code]  
Ricky T. Q. Chen, **Brandon Amos**, and Maximilian Nickel  
ICLR 2021
32. *Neural Spatio-Temporal Point Processes* [code]  
Ricky T. Q. Chen, **Brandon Amos**, and Maximilian Nickel  
ICLR 2021
33. *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
34. *Neural Fixed-Point Acceleration for Convex Optimization* [code]  
Shobha Venkataraman\* and **Brandon Amos\***  
ICML AutoML Workshop 2021
35. *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
36. *Input Convex Gradient Networks*  
Jack Richter-Powell, Jonathan Lorraine, and **Brandon Amos**  
NeurIPS OTML Workshop 2021
37. *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
38. *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.....

- 39. *The Differentiable Cross-Entropy Method* [code] [slides]  
**Brandon Amos** and Denis Yarats  
ICML 2020
- 40. *Objective Mismatch in Model-based Reinforcement Learning*  
Nathan Lambert, **Brandon Amos**, Omry Yadan, and Roberto Calandra  
L4DC 2020
- 41. *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
- 42. *Neural Potts Model*  
Tom Sercu, Robert Verkuil, Joshua Meier, **Brandon Amos**, Zeming Lin, Caroline Chen, Jason Liu, Yann LeCun, and Alexander Rives  
MLCB 2020
- 43. *Deep Riemannian Manifold Learning*  
Aaron Lou, Maximilian Nickel, and **Brandon Amos**  
NeurIPS Geo4dl Workshop 2020

## 2019.....

- 44. *Differentiable Optimization-Based Modeling for Machine Learning* [code]  
**Brandon Amos**  
Ph.D. Thesis 2019
- 45. *Differentiable Convex Optimization Layers* [code]  
Akshay Agrawal\*, **Brandon Amos\***, Shane Barratt\*, Stephen Boyd\*, Steven Diamond\*, and J. Zico Kolter\*  
NeurIPS 2019
- 46. *The Limited Multi-Label Projection Layer* [code]  
**Brandon Amos**, Vladlen Koltun, and J. Zico Kolter  
arXiv 2019
- 47. *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.....

- 48. *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
- 49. *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

50. *Depth-Limited Solving for Imperfect-Information Games*  
Noam Brown, Tuomas Sandholm, and **Brandon Amos**  
NeurIPS 2018
  51. *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.....
52. *OptNet: Differentiable Optimization as a Layer in Neural Networks* [code] [slides]  
**Brandon Amos** and J. Zico Kolter  
ICML 2017
  53. *Input Convex Neural Networks* [code] [slides]  
**Brandon Amos**, Lei Xu, and J. Zico Kolter  
ICML 2017
  54. *Task-based End-to-end Model Learning* [code]  
Priya L. Donti, **Brandon Amos**, and J. Zico Kolter  
NeurIPS 2017
  55. *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
  56. *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
  57. *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**, Guanhong Wu, Kiryong Ha, Khalid Elgazzar, Padmanabhan Pillai, Roberta Klatzky, Daniel Siewiorek, and Mahadev Satyanarayanan  
SEC 2017
  58. *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.....
59. *OpenFace: A general-purpose face recognition library with mobile applications* [code]  
**Brandon Amos**, Bartosz Ludwiczuk, and Mahadev Satyanarayanan  
CMU 2016
  60. *Collapsed Variational Inference for Sum-Product Networks*  
Han Zhao, Tameem Adel, Geoff Gordon, and **Brandon Amos**  
ICML 2016

61. *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
  62. *Privacy mediators: helping IoT cross the chasm*  
Nigel Davies, Nina Taft, Mahadev Satyanarayanan, Sarah Clinch, and **Brandon Amos**  
HotMobile 2016
- 2015 and earlier.....
63. *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
  64. *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
  65. *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
  66. *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
  67. *Are Cloudlets Necessary?*  
Ying Gao, Wenlu Hu, Kiryong Ha, **Brandon Amos**, Padmanabhan Pillai, and Mahadev Satyanarayanan  
CMU 2015
  68. *Adaptive VM handoff across cloudlets*  
Kiryong Ha, Yoshihisa Abe, Zhuo Chen, Wenlu Hu, **Brandon Amos**, Padmanabhan Pillai, and Mahadev Satyanarayanan  
CMU 2015
  69. *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
  70. *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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36.6k+ GitHub stars across all repositories.

- |  |      |
|--|------|
| 1. <a href="#">facebookresearch/advprompter</a> — ★120 — <i>Fast Adaptive Adversarial Prompting for LLMs</i> | 2024 |
| 2. <a href="#">facebookresearch/lagrangian-ot</a> — ★47 — <i>Lagrangian OT</i>                               | 2024 |



3.	<a href="#">lazaratan/meta-flow-matching</a>	— ★38 —	<i>Meta Flow Matching</i>	2024
4.	<a href="#">facebookresearch/soc-matching</a>	— ★27 —	<i>Stochastic Optimal Control Matching</i>	2024
5.	<a href="#">kuleshov/cornell-cs5785-2024-applied-ml</a>	— ★403 —	<i>Slides for our applied ML course</i>	2024
6.	<a href="#">facebookresearch/amortized-optimization-tutorial</a>	— ★236 —	<i>Tutorial on amortized optimization</i>	2023
7.	<a href="#">facebookresearch/taskmet</a>	— ★18 —	<i>TaskMet: Task-Driven Metric Learning for Model Learning</i>	2023
8.	<a href="#">facebookresearch/w2ot</a>	— ★43 —	<i>Wasserstein-2 optimal transport in JAX</i>	2023
9.	<a href="#">facebookresearch/LANCER</a>	— ★35 —	<i>Landscape Surrogate Learning Decision Losses</i>	2023
10.	<a href="#">facebookresearch/theseus</a>	— ★1.8k —	<i>Differentiable non-linear optimization library</i>	2022
11.	<a href="#">facebookresearch/meta-ot</a>	— ★95 —	<i>Meta Optimal Transport</i>	2022
12.	<a href="#">bamos/presentations</a>	— ★142 —	<i>Source for my major presentations</i>	2022
13.	<a href="#">facebookresearch/gwil</a>	— ★23 —	<i>Gromov-Wasserstein Cross Domain Imitation Learning</i>	2022
14.	<a href="#">facebookresearch/nocturne</a>	— ★264 —	<i>A partially-observable multi-agent driving simulator</i>	2022
15.	<a href="#">facebookresearch/rcpm</a>	— ★68 —	<i>Riemannian Convex Potential Maps</i>	2021
16.	<a href="#">facebookresearch/svg</a>	— ★55 —	<i>Model-based stochastic value gradient</i>	2021
17.	<a href="#">facebookresearch/mbrl-lib</a>	— ★961 —	<i>Model-based reinforcement learning library</i>	2021
18.	<a href="#">martius-lab/CombOptNet</a>	— ★72 —	<i>CombOptNet</i>	2021
19.	<a href="#">samcohen16/Aligning-Time-Series</a>	— ★49 —	<i>Aligning time series on incomparable spaces</i>	2021
20.	<a href="#">facebookresearch/neural_stpp</a>	— ★97 —	<i>Neural Spatio-Temporal Point Processes</i>	2021
21.	<a href="#">facebookresearch/neural-scs</a>	— ★29 —	<i>Neural Fixed-Point Acceleration for SCS</i>	2021
22.	<a href="#">rtqichen/torchdiffeq</a>	— ★5.6k —	<i>PyTorch Differentiable ODE Solvers (differentiable event handling)</i>	2021
23.	<a href="#">facebookresearch/dcem</a>	— ★123 —	<i>The Differentiable Cross-Entropy Method</i>	2020
24.	<a href="#">facebookresearch/higher</a>	— ★1.6k —	<i>PyTorch higher-order gradient and optimization library</i>	2019
25.	<a href="#">bamos/thesis</a>	— ★320 —	<i>Ph.D. Thesis LaTeX source code</i>	2019
26.	<a href="#">cvxgrp/cvxpylayers</a>	— ★1.8k —	<i>Differentiable Convex Optimization Layers</i>	2019
27.	<a href="#">locuslab/lml</a>	— ★57 —	<i>The Limited Multi-Label Projection Layer</i>	2019
28.	<a href="#">locuslab/mpc.pytorch</a>	— ★883 —	<i>Differentiable PyTorch Model Predictive Control library</i>	2018
29.	<a href="#">locuslab/differentiable-mpc</a>	— ★247 —	<i>Differentiable MPC experiments</i>	2018
30.	<a href="#">locuslab/icnn</a>	— ★278 —	<i>Input Convex Neural Network experiments</i>	2017
31.	<a href="#">locuslab/optnet</a>	— ★511 —	<i>OptNet experiments</i>	2017
32.	<a href="#">locuslab/qpth</a>	— ★680 —	<i>Differentiable PyTorch QP solver</i>	2017
33.	<a href="#">bamos/densenet.pytorch</a>	— ★829 —	<i>PyTorch DenseNet implementation</i>	2017
34.	<a href="#">bamos/block</a>	— ★298 —	<i>Intelligent block matrix constructions</i>	2017
35.	<a href="#">bamos/setGPU</a>	— ★106 —	<i>Automatically use the least-loaded GPU</i>	2017
36.	<a href="#">bamos/dcgan-completion.tensorflow</a>	— ★1.3k —	<i>Image completion with GANs</i>	2016
37.	<a href="#">cmusatyalab/openface</a>	— ★15.1k —	<i>Face recognition with deep neural networks</i>	2015
38.	<a href="#">bamos/girl</a>	— ★70 —	<i>GitHub README link checker</i>	2015
39.	<a href="#">bamos/conference-tracker</a>	— ★71 —	<i>Minimal conference tracker</i>	2015
40.	<a href="#">vtopt/qnstop</a>	— ★10 —	<i>Fortran quasi-Newton stochastic optimization library</i>	2014
41.	<a href="#">bamos/snowglobe</a>	— ★27 —	<i>Haskell-driven, self-hosted web analytics with minimal configuration</i>	2014
42.	<a href="#">bamos/zsh-history-analysis</a>	— ★226 —	<i>Analyze and plot your zsh history</i>	2014
43.	<a href="#">bamos/beamer-snippets</a>	— ★109 —	<i>Beamer and TikZ snippets</i>	2014
44.	<a href="#">bamos/latex-templates</a>	— ★366 —	<i>LaTeX templates</i>	2013
45.	<a href="#">cparse/cparse</a>	— ★335 —	<i>C++ expression parser using Dijkstra's shunting-yard algorithm</i>	2013
46.	<a href="#">bamos/cv</a>	— ★401 —	<i>Source for this CV: Creates LaTeX/Markdown from YAML/BibTeX</i>	2013
47.	<a href="#">bamos/parsec-benchmark</a>	— ★98 —	<i>PARSEC benchmark support for Arch Linux</i>	2013
48.	<a href="#">bamos/python-scripts</a>	— ★198 —	<i>Short and fun Python scripts</i>	2013
49.	<a href="#">bamos/reading-list</a>	— ★185 —	<i>YAML reading list and notes system</i>	2013
50.	<a href="#">bamos/dotfiles</a>	— ★239 —	♥ <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>Transport and flows on distributions over distributions</i> — Genesis Therapeutics	2024
2. <i>Transport and flows on distributions over distributions</i> — UT Austin	2024
3. <i>On LLM prompt optimization and amortization</i> — Dagstuhl Seminar on ML for CO	2024
4. <i>Amortized optimization for optimal transport and LLM attacks</i> — ISMP	2024
5. <i>Differentiable optimization for robotics</i> — RSS Optimization for Robotics Workshop	2024
6. <i>Amortized optimization-based reasoning for AI</i> — University of Amsterdam	2024
7. <i>End-to-end learning geometries for graphs, dynamical systems, and regression</i> — LoG New York	2024
8. <i>Amortized optimization for optimal transport</i> — NeurIPS Optimal Transport and ML Workshop	2023
9. <i>On optimal control and machine learning</i> — ICML Control and Dynamical Systems Workshop	2023
10. <i>Tutorial on amortized optimization</i> — Brown University	2023
11. <i>Learning with differentiable and amortized optimization</i> — NYU AI Seminar	2023
12. <i>Learning with differentiable and amortized optimization</i> — Vanderbilt ML Seminar	2023
13. <i>Learning with differentiable and amortized optimization</i> — Microsoft Research	2022
14. <i>Amortized optimization for computing optimal transport maps</i> — Flatiron Workshop	2022
15. <i>Learning with differentiable and amortized optimization</i> — Cornell AI Seminar	2022
16. <i>Learning with differentiable and amortized optimization</i> — Cornell Tech Seminar	2022
17. <i>Learning with differentiable and amortized optimization</i> — Argonne National Laboratory	2022
18. <i>Theseus: A library for differentiable nonlinear optimization</i> — NYU	2022
19. <i>Theseus: A library for differentiable nonlinear optimization</i> — University of Zurich	2022
20. <i>Differentiable optimization-based modeling for machine learning</i> — Colorado Mines AMS Colloquium	2022
21. <i>Differentiable optimization</i> — IJCAI Tutorial	2022
22. <i>Differentiable optimization for control and RL</i> — ICML Workshop on Decision Awareness in RL	2022
23. <i>Differentiable optimization-based modeling for machine learning</i> — CPAIOR Master Class	2022
24. <i>Tutorial on amortized optimization</i> — ICCOPT	2022
25. <i>Differentiable optimization for control and RL</i> — Gridmatic	2022
26. <i>Learning for control with differentiable optimization and ODEs</i> — Columbia University	2021
27. <i>Differentiable optimization-based modeling for machine learning</i> — IBM Research	2021
28. <i>Differentiable optimization for control</i> — Max Planck Institute (Tübingen)	2020
29. <i>Differentiable optimization-based modeling for machine learning</i> — Mila Seminar	2020
30. <i>Deep Declarative Networks</i> — ECCV Tutorial	2020
31. <i>On differentiable optimization for control and vision</i> — CVPR Deep Declarative Networks Workshop	2020
32. <i>Differentiable optimization-based modeling for machine learning</i> — Caltech CS 159 (Guest Lecture)	2020
33. <i>Unrolled optimization for learning deep energy models</i> — SIAM MDS Minisymposium	2020
34. <i>Differentiable optimization-based modeling for machine learning</i> — NYU CILVR Seminar	2019
35. <i>Differentiable optimization-based modeling for machine learning</i> — INFORMS	2019
36. <i>Differentiable optimization-based modeling for machine learning</i> — Facebook AI Research	2019
37. <i>Differentiable optimization-based modeling for machine learning</i> — ISMP	2018
38. <i>Differentiable optimization-based modeling for machine learning</i> — Google Brain	2018
39. <i>Differentiable optimization-based modeling for machine learning</i> — Bosch Center for AI	2018
40. <i>Differentiable optimization-based modeling for machine learning</i> — Waymo Research	2018
41. <i>Differentiable optimization-based modeling for machine learning</i> — Tesla AI	2018
42. <i>Differentiable optimization-based modeling for machine learning</i> — NVIDIA Robotics	2018
43. <i>Differentiable optimization-based modeling for machine learning</i> — Salesforce Research	2018
44. <i>Differentiable optimization-based modeling for machine learning</i> — OpenAI	2018
45. <i>Differentiable optimization-based modeling for machine learning</i> — NNAISENSE	2018
46. <i>Differentiable optimization and control</i> — UC Berkeley	2018

## Interns and Students

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<a href="#">Aaron Havens</a> (visiting FAIR from UIUC)	2024 – present
<a href="#">Aram-Alexandre Pooladian</a> (visiting FAIR from NYU)	2022 – 2024
<a href="#">Carles Domingo-Enrich</a> (visiting FAIR from NYU, now at MSR)	2022 – 2024
<a href="#">Anselm Paulus</a> (visiting FAIR from Max Planck Institute, Tübingen)	2023 – 2024
<a href="#">Matthew Retchin</a> (Columbia MS thesis committee, now at Harvard)	2023
<a href="#">Sanae Lotfi</a> (visiting FAIR from NYU)	2022 – 2023
<a href="#">Dishank Bansal</a> (AI resident at FAIR)	2022 – 2023
<a href="#">Arnaud Fickinger</a> (visiting FAIR from Berkeley)	2021 – 2022
<a href="#">Aaron Lou</a> (visiting FAIR from Cornell and Stanford, now scientist at OpenAI)	2020 – 2022
<a href="#">Eugene Vinitzky</a> (visiting FAIR from Berkeley, now professor at NYU)	2021 – 2022
<a href="#">Samuel Cohen</a> (visiting FAIR from UCL, now CEO at FairGen)	2021 – 2022
<a href="#">Ricky Chen</a> (visiting FAIR from Toronto, now scientist at FAIR)	2020
<a href="#">Paul Liang</a> (visiting FAIR from CMU, now professor at MIT)	2020
<a href="#">Phillip Wang</a> (at CMU, now CEO at <a href="#">Gather</a> )	2018

## Professional Activities

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AAAI Senior Program Committee	2025
NeurIPS Area Chair	2024
NeurIPS Datasets and Benchmarks Area Chair	2024
AAAI Senior Program Committee	2024
NeurIPS Area Chair	2023
NeurIPS Datasets and Benchmarks Area Chair	2023
AAAI Senior Program Committee	2023
<a href="#">NeurIPS Learning Meets Combinatorial Optimization Workshop Organizer</a>	2020
<a href="#">CVPR Deep Declarative Networks Workshop Organizer</a>	2020
<a href="#">ECCV Deep Declarative Networks Tutorial Organizer</a>	2020
CMU CSD MS Admissions	2014 – 2015

## Reviewing.....

AAAI Conference on Artificial Intelligence  
American Controls Conference (ACC)  
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 the Constraint Programming, AI, and Operations Research (CPAIOR)  
International Conference on Learning Representations (ICLR)  
International Conference on Machine Learning (ICML)  
International Conference on Machine Learning (ICML) SODS Workshop  
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) OPT Workshop

Neural Information Processing Systems (NeurIPS) DiffCVGP Workshop  
Neural Information Processing Systems (NeurIPS) Deep RL Workshop  
Optimization Letters  
Transactions on Machine Learning Research (TMLR)

## Teaching

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Applied Machine Learning (Cornell Tech CS5785), Co-instructor	F2024
Graduate AI (CMU 15-780), TA	S2017
Distributed Systems (CMU 15-440/640), TA	S2016
Software Design and Data Structures (VT CS2114), 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