

Academic Employment

Simon Fraser University <i>Assistant Professor (Computing Science)</i>	Vancouver, Canada 2022 -
University of Alberta <i>Postdoctoral Researcher (Computing Science)</i> <ul style="list-style-type: none">Supervisor: Csaba Szepesvári	Edmonton, Canada 2020 - 2021
Mila, Université de Montréal <i>Postdoctoral Researcher (Computer Science and Operations Research)</i> <ul style="list-style-type: none">Supervisor: Simon Lacoste-Julien	Montreal, Canada 2019-2020

Education

University of British Columbia <i>Doctor of Philosophy (Computer Science)</i> <ul style="list-style-type: none">Supervisors: Mark Schmidt, Laks LakshmananThesis: Structured Bandits and Applications	Vancouver, Canada 2015 - 2018
University of British Columbia <i>Master of Science (Computer Science)</i> <ul style="list-style-type: none">Supervisor: Laks LakshmananThesis: Influence Maximization in Bandit and Adaptive settingsGPA: 4.32 / 4.33	Vancouver, Canada 2013 - 2015
Birla Institute of Technology and Science, Pilani <i>Bachelor of Engineering (Computer Science)</i> <ul style="list-style-type: none">GPA: 9.37 / 10	Goa, India 2008 - 2012

Publications

Peer-reviewed Conference Publications

- “Preserving Plasticity in Continual Learning with Adaptive Linearity Injection”, Seyed Roozbeh Razavi Rohani, Khashayar Khajavi, Wesley Chung, Mo Chen, **Sharan Vaswani**. *Conference on Lifelong Learning Agents (CoLLAs)*, 2025.
- “Armijo Line-search Can Make (Stochastic) Gradient Descent Provably Faster”, **Sharan Vaswani**, Reza Babanezhad. *International Conference on Machine Learning (ICML)*, 2025.
- “Fast Convergence of Softmax Policy Mirror Ascent”, Reza Asad, Reza Babanezhad, Issam Laradji, Nicolas Le Roux, **Sharan Vaswani**. *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2025.
“Optimization for Machine Learning” workshop, NeurIPS, 2024.
- “Small steps no more: Global convergence of stochastic gradient bandits for arbitrary learning rates”, Jincheng Mei, Bo Dai, Alekh Agarwal, **Sharan Vaswani**, Anant Raj, Csaba Szepesvari, Dale Schuurmans. *Neural Information Processing Systems (NeurIPS)*, 2024.

5. “Towards Principled, Practical Policy Gradient for Bandits and Tabular MDPs”, Michael Lu, Matin Aghaei, Anant Raj, **Sharan Vaswani**. *Reinforcement Learning Conference (RLC)*, 2024.
“Optimization for Machine Learning” workshop, NeurIPS, 2023 (**Oral Presentation**).
6. “From Inverse Optimization to Feasibility to ERM”, Saurabh Mishra, Anant Raj, **Sharan Vaswani**. *International Conference on Machine Learning (ICML)*, 2024.
“Optimization for Machine Learning” workshop, NeurIPS, 2023.
7. “Decision-Aware Actor-Critic with Function Approximation and Theoretical Guarantees”, **Sharan Vaswani**, Amirreza Kazemi, Reza Babanezhad, Nicolas Le Roux. *Neural Information Processing Systems (NeurIPS)*, 2023.
“Duality Principles for Modern ML” workshop, ICML, 2023.
8. “Target-based Surrogates for Stochastic Optimization”, Jonathan Lavington*, **Sharan Vaswani***, Reza Babanezhad, Mark Schmidt, Nicolas Le Roux. *International Conference on Machine Learning (ICML)*, 2023.
“Optimization for Machine Learning” workshop, NeurIPS, 2022.
9. “Near-Optimal Sample Complexity Bounds for Constrained MDPs”, **Sharan Vaswani***, Lin F. Yang*, Csaba Szepesvári. *Neural Information Processing Systems (NeurIPS)*, 2022.
10. “Towards Noise-adaptive, Problem-adaptive (Accelerated) Stochastic Gradient Descent”, **Sharan Vaswani**, Benjamin Dubois-Taine, Reza Babanezhad. *International Conference on Machine Learning (ICML)*, 2022 (**Oral Presentation**).
“Optimization for Machine Learning” workshop, NeurIPS, 2021.
11. “Improved Policy Optimization for Online Imitation Learning”, Jonathan Lavington, **Sharan Vaswani**, Mark Schmidt. *Conference on Lifelong Learning Agents (CoLLAs)*, 2022.
12. “Towards Painless Policy Optimization for Constrained MDPs”, Arushi Jain*, **Sharan Vaswani***, Reza Babanezhad, Doina Precup, Csaba Szepesvári, *Conference on Uncertainty in Artificial Intelligence (UAI)*, 2022.
13. “A general class of surrogate functions for stable and efficient reinforcement learning”, **Sharan Vaswani**, Olivier Bachem, Simone Totaro, Robert Müller, Shivam Garg, Matthieu Geist, Marlos Machado, Pablo Samuel Castro, Nicolas Le Roux. *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2022 (**Best Paper Honorable Mention**).
“Workshop on Reinforcement Learning Theory”, ICML 2021.
14. “Stochastic Polyak Step-size for SGD: An Adaptive Learning Rate for Fast Convergence”, Nicolas Loizou, **Sharan Vaswani**, Issam Laradji, Simon Lacoste-Julien. *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2021.
“Optimization for Machine Learning” workshop, NeurIPS, 2020 (**Spotlight**).
15. “Fast and Furious Convergence: Stochastic Second Order Methods under Interpolation”, Si Yi Meng*, **Sharan Vaswani***, Issam Laradji, Mark Schmidt, Simon Lacoste-Julien. *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2020.
“Beyond First Order Methods in Machine Learning” workshop, NeurIPS 2019 (**Spotlight**).
16. “Old Dog Learns New Tricks: Randomized UCB for Bandit Problems”, **Sharan Vaswani**, Abbas Mehrabian, Audrey Durand, Branislav Kveton. *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2020.
17. “Painless Stochastic Gradient: Interpolation, Line-Search, and Convergence Rates”, **Sharan Vaswani**, Aaron Mishkin, Issam Laradji, Mark Schmidt, Gauthier Gidel, Simon Lacoste-Julien. *Neural Information Processing Systems (NeurIPS)*, 2019.
18. “Garbage In, Reward Out: Bootstrapping Exploration in Multi-Armed Bandits”, Branislav Kveton, Csaba Szepesvári, **Sharan Vaswani**, Zheng Wen, Mohammad Ghavamzadeh, Tor Lattimore. *International Conference on Machine Learning (ICML)*, 2019.

19. “Fast and Faster Convergence of SGD for Over-Parameterized Models and an Accelerated Perceptron”, **Sharan Vaswani**, Francis Bach, Mark Schmidt. *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2019.
20. “Online Influence Maximization under Independent Cascade Model with Semi-Bandit Feedback”, Zheng Wen, Branislav Kveton, Michal Valko, **Sharan Vaswani**. *Neural Information Processing Systems (NIPS)*, 2017.
21. “Model-Independent Online Learning for Influence Maximization”, **Sharan Vaswani**, Branislav Kveton, Zheng Wen, Mohammad Ghavamzadeh, Laks Lakshmanan, Mark Schmidt. *International Conference on Machine Learning (ICML)*, 2017.
22. “Horde of Bandits using Gaussian Markov Random Fields”, **Sharan Vaswani**, Mark Schmidt, Laks Lakshmanan. *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2017. **(Oral Presentation)**
23. “Modeling Non-Progressive Phenomena for Influence Propagation”, Vincent Yun Lou, Smriti Bhagat, Laks Lakshmanan, **Sharan Vaswani**. *ACM Conference on Online Social Networks (COSN)*, 2014.
24. “Performance Evaluation of Medical Imaging Algorithms on Intel MIC Platform”, Jyotsna Khemka, Mrugesh Gajjar, **Sharan Vaswani**, Nagavijayalakshmi Vydyanathan, Rama Malladi, Vinutha V. *IEEE International Conference on High Performance Computing (HiPC)*, 2013.
25. “Fast 3D Structure Localization in Medical Volumes using CUDA-enabled GPUs”, **Sharan Vaswani**, Rahul Thota, Nagavijayalakshmi Vydyanathan, Amit Kale. *IEEE International Conference on Parallel, Distributed and Grid Computing*, 2012. **(Best Paper Award)**

Peer-reviewed Journal Publications

1. “Noise-adaptive (Accelerated) Stochastic Heavy-Ball Momentum”, Anh Dang, Reza Babanezhad, **Sharan Vaswani**, *Transactions on Machine Learning Research*, 2025.
“Optimization for Machine Learning” workshop, NeurIPS, 2023.
2. “SVRG meets AdaGrad: Painless Variance Reduction”, Benjamin Dubois-Taine*, **Sharan Vaswani***, Reza Babanezhad, Mark Schmidt, Simon Lacoste-Julien. *Machine Learning Journal*, 2022.
3. “Combining Bayesian Optimization and Lipschitz Optimization”, Mohamed Osama Ahmed, **Sharan Vaswani**, Mark Schmidt. *Machine Learning Journal*, 2020.
4. “Fast 3D Salient Region Detection in Medical Images using GPUs”, Thota, Rahul, **Sharan Vaswani**, Amit Kale, Nagavijayalakshmi Vydyanathan. *Machine Intelligence and Signal Processing. Springer India*, 2016.

Peer-reviewed Workshop Publications

1. “Improving OOD Generalization of Pre-trained Encoders via Aligned Embedding-Space Ensembles”, Shuman Peng, Arash Khoeini, **Sharan Vaswani**, Martin Ester, “Unifying Representations in Neural Models (UniReps)” workshop, “Self-supervised Learning (SSL) workshop”, NeurIPS, 2024.
2. “Surrogate Minimization: An Optimization Algorithm for Training Large Neural Networks with Model Parallelism”, Reza Asad, Reza Babanezhad, Issam Laradji, Nicolas Le Roux, **Sharan Vaswani**. “Optimization for Machine Learning” workshop, NeurIPS, 2023.
3. “MSL: An Adaptive Momentem-based Stochastic Line-search Framework”, Chen Fan, **Sharan Vaswani**, Christos Thrampoulidis, Mark Schmidt. “Optimization for Machine Learning” workshop, NeurIPS, 2023.
4. “Adaptive Gradient Methods Converge Faster with Over-Parameterization (but you should do a line-search)”, **Sharan Vaswani**, Issam Laradji, Frederik Kunstner, Si Yi Meng, Mark Schmidt, Simon Lacoste-Julien. “Optimization for Machine Learning” workshop, NeurIPS, 2020 **(Spotlight)**.

5. “How to Make Your Optimizer Generalize Better”, **Sharan Vaswani**, Reza Babanezhad, Jose Gallego, Aaron Mishkin, Simon Lacoste-Julien, Nicolas Le Roux. “Optimization for Machine Learning” workshop, NeurIPS, 2020 (**Spotlight**).
6. “Accelerating boosting via accelerated greedy coordinate descent”, Xiaomeng Ju*, Yifan Sun*, **Sharan Vaswani***, Mark Schmidt. “Optimization for Machine Learning” workshop, NeurIPS 2019.
7. “Influence Maximization with Bandits”, **Sharan Vaswani**, Laks Lakshmanan, Mark Schmidt. “Networks in Social and Information Sciences” workshop, NIPS, 2015.

Preprints

1. “Rethinking the Global Convergence of Softmax Policy Gradient with Linear Function Approximation”, Max Qiushi Lin, Jincheng Mei, Matin Aghaei, Michael Lu, Bo Dai, Alekh Agarwal, Dale Schuurmans, Csaba Szepesvari, **Sharan Vaswani**. ArXiv, 2025. (*Under journal submission*).
2. “New Insights into Bootstrapping for Bandits”, **Sharan Vaswani**, Branislav Kveton, Zheng Wen, Anup Rao, Mark Schmidt, Yasin Abbasi-Yadkori. ArXiv, 2018.
3. “Adaptive Influence Maximization in Social Networks: Why Commit when You can Adapt?”, **Sharan Vaswani**, Laks V.S. Lakshmanan. ArXiv, 2016.

Awards

- Discovery Grant awarded by the Natural Sciences and Engineering Research Council of Canada (2022-2027) [157,500 CAD for 5 years].
- Postdoctoral Scholarship awarded by The Institute for Data Valorization (IVADO) (2019 - 2020).
- Four Year Doctoral Fellowship awarded by the University of British Columbia (2015 - 2018).
- Merit Scholarship awarded by the Birla Institute of Technology and Science, Pilani (2008-2010).
- Travel award for AISTATS 2017, ICML 2017-2019, NeurIPS 2017, 2019.
- Outstanding reviewer for ICLR 2021, ICML 2021, 2022.
- Top 30% of highest scoring reviewers for NeurIPS 2018, 2019.

Teaching

Simon Fraser University

Instructor

2022-

- [CMPT 210](#): Probability and Computing (undergraduate course)
 - * Summer, 2022. Class size: 50.
 - * Spring, 2023. Class size: 41.
 - * Spring, 2024. Class size: 71.
 - * Fall, 2024. Class size: 199.
- [CMPT 409/981](#): Optimization for Machine Learning (cross-listed undergraduate/graduate course)
 - * Fall, 2022. Class size: 33 (5 undergraduate students, 28 graduate students).
 - * Fall, 2024. Class size: 23 (9 undergraduate students, 14 graduate students).
- [CMPT 419/983](#): Theoretical Foundations of Reinforcement Learning (cross-listed undergraduate/graduate course)
 - * Fall, 2023. Class size: 25 (6 undergraduate students, 19 graduate students).

University of British Columbia

Teaching Assistant

2013-2018

- Theory of Computation (2013), Computational Optimization (2014), Artificial Intelligence (2014).
- Undergraduate Machine learning (2015, 2017, 2018).
- Graduate Machine learning (2016, 2017).

Birla Institute of Technology and Science, Pilani

Teaching Assistant

2011

- Data Structures and Algorithms (2011)

Supervision

- Students supervised (as the primary supervisor at Simon Fraser University)
 - Qiushi Lin, PhD
 - Reza Asad, PhD (co-supervised with Manolis Savva)
 - Michael Lu, PhD (co-supervised with Mo Chen)
 - Xingtu Liu, MSc
 - Matin Aghaei, MSc, 2025. *Thesis*: Convergence of Softmax Policy Gradient: Incorporating Entropy Regularization and Handling Linear Function Approximation. *Next position*: Huawei
 - Anh Dang, MSc, 2024. *Thesis*: (Accelerated) Noise-adaptive Stochastic Heavy-Ball Momentum. *Next position*: Amazon
 - Saurabh Mishra, MSc, 2024. *Thesis*: From Inverse Optimization to Feasibility to Empirical Risk Minimization. *Next position*: Huawei
- Students mentored/unofficially co-supervised (as Assistant Professor):
 - Amirreza Kazemi, MSc, Simon Fraser University. Supervisor: Martin Ester. *Next position*: Huawei
 - Jonathan Lavington, PhD, University of British Columbia. Supervisor: Mark Schmidt. *Next position*: Amazon.
 - Arushi Jain, PhD, Mila, McGill University. Supervisor: Doina Precup.
- Students mentored/unofficially co-supervised (as Postdoctoral Researcher):
 - Si Yi Meng, MSc, University of British Columbia. Supervisor: Mark Schmidt. *Next position*: PhD, Cornell University.
 - Aaron Mishkin, MSc, University of British Columbia. Supervisor: Mark Schmidt. *Next position*: PhD, Stanford University.
 - Benjamin Paul-Dubois-Taine, MSc, Paris-Saclay University. Supervisor: Alessandro Rudi. *Next position*: PhD, Paris-Saclay University.
 - Shivam Garg, Research assistant, University of Alberta. Supervisor: Csaba Szepesvári. *Next position*: PhD, University of Alberta.
 - Jose Gallego, PhD, Mila, Université de Montréal. Supervisor: Simon Lacoste-Julien.
 - Frederik Kunstner, PhD, University of British Columbia. Supervisor: Mark Schmidt. *Next position*: Postdoc, Inria Paris.
- Committee Member (at Simon Fraser University)
 - Shuman Peng, Ph.D. Supervisor: Martin Ester.
 - Sriraj Meenavilli, MSc, 2023. Supervisor: Mo Chen.
 - Amirreza Kazemi, MSc, 2023. Supervisor: Martin Ester

- Examiner (at Simon Fraser University)
 - Dekai Lin, MSc, 2023. Supervisor: Ke Wang
- External Examiner
 - Stephen Scinocca, MSc, 2022. University of Victoria. Supervisor: Nishant Mehta.

Internal Service

- Member of Undergraduate Program committee (Jan'22 - August'22), Graduate Program committee (September'22 - Present) at Simon Fraser University.
- Volunteer in the UBC Computer Science Graduate Admissions committee for 2016-2017, 2017-2018.
- Student representative in the UBC Computer Science Faculty Recruiting committee for 2015-2016.
- Co-organizer of reading groups at UBC: Machine learning (2018), Deep learning (2015).

External Service

- Organizer of the “Mathematics of Machine Learning” research theme at the 2022 annual meeting of the Canadian Applied and Industrial Mathematics Society.
- External Reviewer for NSERC Arthur B. McDonald Fellowship, 2025.
- Conference Area Chair: NeurIPS'22-'25; ICML'23-'25; AAAI'25, RLC'25
- Reviewer: JMLR'18-'23, AISTATS'19 - '21, ICLR'18-'21, ICML'17-'22, IEEE TNNLS, NeurIPS'17-'21, New In ML workshop (NeurIPS'19), OPT-ML workshop (NeurIPS'20 - '21).
- Conference volunteer for NIPS'16.
- Conference sub-reviewer for SIGMOD'18, AAAI'17,'18, WWW'17, SDM'15,'17, KDD'16,'17, ICDM'14.
- Contributor to the Optimization chapter of the “Machine Learning, Second Edition: A Probabilistic Perspective” book by Kevin Murphy.

Other Employment

Inria Paris <i>Intern</i>	Paris, France <i>May - July, 2018</i>
◦ Supervisor: Francis Bach	
Apple <i>Intern</i>	Seattle, USA <i>June - August, 2017</i>
◦ Supervisors: Hoyt Koepke, Srikrishna Sridhar	
Limespot <i>Machine Learning Consultant</i>	Vancouver, Canada <i>March - May 2017; Sept - Oct, 2017</i>
Adobe Research <i>Data Scientist Intern</i>	San Jose, USA <i>August - Oct, 2016</i>
◦ Supervisors: Branislav Kveton, Zheng Wen, Mohammad Ghavamzadeh	
Siemens Corporate Research and Technologies <i>Research Engineer, Parallel Systems</i>	Bangalore, India <i>July 2012 - June 2013</i>
◦ Supervisors: Nagavijayalakshmi Vydyanathan, Amit Kale, Saptarshi Das	

- Supervisors: Nagavijayalakshmi Vydyanathan, Amit Kale

Indira Gandhi Centre for Atomic Research

Kalpakkam, India

Intern

May 2010 - July 2010

- Supervisor: M.L. Jayalal

Patents

- “Influence Maximization Determination in a Social Network System”, **Sharan Vaswani**, Branislav Kveton, Zheng Wen, Mohammad Ghavamzadeh. US Patent App. 15/611,597, 2018.

Invited Talks

- “From Inverse Optimization to Feasibility to ERM”
 - INFORMS Computing Society Conference (ICS), Toronto, March 2025.
 - INFORMS Annual Meeting, Seattle, October 2024.
- “Global Convergence of Softmax Policy Gradient for Stochastic Bandits”
 - Canadian Mathematical Society Winter Meeting, Vancouver, November 2024.
- “Towards Principled, Practical Policy Gradient for Bandits and Tabular MDPs”
 - Theory of RL Workshop, Alberta, June 2024.
- “A Walk with SGD: Interpolation, Problem and Noise Adaptivity”
 - Department of Combinatorics and Optimization, University of Waterloo, January, 2024.
- “Exploiting Problem Structure for Efficient Optimization in Machine Learning”
 - Operations Research Seminar, Simon Fraser University, October, 2023.
- “Decision-Aware Actor-Critic with Function Approximation and Theoretical Guarantees”
 - Vector Institute, Toronto, June, 2023.
- “Target-based Surrogates for Efficient Sequential decision-making”
 - Microsoft Research, Montreal, June, 2023.
 - AI Seminar, Simon Fraser University, March 2023.
- “A general class of surrogate functions for stable and efficient reinforcement learning”
 - Theory of RL Workshop, Alberta, May 2023.
 - RL Seminar, Mila, Montreal, March 2022.
 - Facebook AI Research, Paris, April 2022.
- “Towards Noise-adaptive, Problem-adaptive Stochastic Gradient Descent”
 - Siam Conference on Optimization, Seattle, June 2023.

- Optimization Seminar, Mila, Montreal, November 2021.
 - RWTH Aachen University, April, 2022.
- “Rethinking Stochastic Optimization for Modern Machine Learning”
 - Simon Fraser University, Vancouver, March 2021.
 - York University, Toronto, March 2021.
 - West Coast Optimization Meeting, Okanagan, May 2021.
 - SIAM Conference on Optimization, July, 2021.
- “Old Dog Learns New Tricks: Randomized UCB for Bandit Problems”, RL Seminar, Mila, Montreal, August 2020.
- “Painless Stochastic Gradient: Interpolation, Line-Search, and Convergence Rates”
 - Huawei Research, Montreal, October 2019.
 - Optimization Seminar, Mila, Montreal, August 2019.
 - Element AI, Montreal, July 2019.
 - Google Brain, Montreal, July 2019.
- “Influence Maximization with Bandits”, UBC-Element AI workshop, August, 2018.
- “New Insights into Bootstrapping for Bandits”, Inria Paris, May 2018.