

Current Position

- **School of Computing Science, Simon Fraser University** Vancouver, Canada
Assistant Professor January 2022 -

Education

- **University of British Columbia** Vancouver, Canada
Doctor of Philosophy (Computer Science) Sep 2015 - Dec 2018
 - Supervisors: Mark Schmidt, Laks Lakshmanan
 - Thesis: Structured Bandits and Applications
- **University of British Columbia** Vancouver, Canada
Master of Science (Computer Science) Sep 2013 - July 2015
 - Supervisor: Laks Lakshmanan
 - Thesis: Influence Maximization in Bandit and Adaptive settings
 - GPA: 4.32 / 4.33
- **Birla Institute of Technology and Science, Pilani** Goa, India
Bachelor of Engineering (Computer Science) Aug 2008 - July 2012
 - GPA: 9.37 / 10

Publications

- **Large-scale optimization**
- [W] “Towards Noise-adaptive, Problem-adaptive Stochastic Gradient Descent”, **Sharan Vaswani**, Benjamin Dubois-Taine, Reza Babanezhad. “Optimization for Machine Learning” workshop, NeurIPS, 2021. *Under conference submission*.
- [R] “SVRG meets AdaGrad: Painless Variance Reduction”, Benjamin Dubois-Taine*, **Sharan Vaswani***, Reza Babanezhad, Mark Schmidt, Simon Lacoste-Julien. arXiv, 2021. *Under conference submission*.
- [W] “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**).
- [C] “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**).
- [W] “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**).
- [C] “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**).

C: Conference, W: Workshop, J: Journal, R: Technical report.

* Equal contribution.

- [C] “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.
- [W] “Accelerating boosting via accelerated greedy coordinate descent”, Xiaomeng Ju*, Yifan Sun*, **Sharan Vaswani***, Mark Schmidt. “Optimization for Machine Learning” workshop, NeurIPS 2019.
- [C] “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.

• Sequential decision-making

- [W] “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, 2021. Workshop on Reinforcement Learning Theory, International Conference on Machine Learning (ICML), 2021. *Under conference submission.*
- [C] “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.
- [J] “Combining Bayesian Optimization and Lipschitz Optimization”, Mohamed Osama Ahmed, **Sharan Vaswani**, Mark Schmidt. European Conference on Machine Learning (ECML) Journal Track, 2020.
- [C] “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.
- [R] “New Insights into Bootstrapping for Bandits”, **Sharan Vaswani**, Branislav Kveton, Zheng Wen, Anup Rao, Mark Schmidt, Yasin Abbasi-Yadkori. arXiv:1805.09793, 2018.
- [C] “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.
- [C] “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.
- [C] “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)**
- [W] “Influence Maximization with Bandits”, **Sharan Vaswani**, Laks Lakshmanan, Mark Schmidt. “Networks in Social and Information Sciences” workshop, NIPS, 2015.

• Social Networks

- [R] “Adaptive Influence Maximization in Social Networks: Why Commit when You can Adapt?”, **Sharan Vaswani**, Laks V.S. Lakshmanan. arXiv:1604.08171, 2016.
- [C] “Modeling Non-Progressive Phenomena for Influence Propagation”, Vincent Yun Lou, Smriti Bhagat, Laks Lakshmanan, **Sharan Vaswani**. ACM Conference on Online Social Networks (COSN), 2014.

• Parallel Computing

- [C] “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.

- [J] “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.
- [C] “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)**

Teaching & Supervision

- Teaching assistant:
 - Algorithms (2011), Theory of computation (2013), Computational optimization (2014), Artificial intelligence (2014).
 - Undergraduate Machine learning (2015, 2017, 2018).
 - Graduate Machine learning (2016, 2017).
- Students mentored/co-supervised:
 - Si Yi Meng, MSc, 2018-2020, University of British Columbia. Supervisor: Mark Schmidt.
Current position: PhD, Cornell University.
 - Aaron Mishkin, MSc, 2018-2020, University of British Columbia. Supervisor: Mark Schmidt.
Current position: PhD, Stanford University.
 - Benjamin Paul-Dubois-Taine, MSc, 2020-21, Paris-Saclay University. Supervisor: Alessandro Rudi.
Current position: PhD, Paris-Saclay University.
 - Jose Gallego, PhD, 2018-. Mila, Université de Montréal. Supervisor: Simon Lacoste-Julien.
 - Valentin Tiriach, MSc, 2020-, University of Alberta. Supervisor: Csaba Szepesvári.
 - Kenneth Tjhia, MSc, 2020-, University of Alberta. Supervisor: Csaba Szepesvári.
 - Shivam Garg, Research assistant, University of Alberta. Supervisor: Csaba Szepesvári.
 - Arushi Jain, PhD, 2018-, Mila, McGill University. Supervisor: Doina Precup.
 - Frederik Kunstner, PhD, 2019-, University of British Columbia. Supervisor: Mark Schmidt.
 - Jonathan Lavington, PhD, 2018-, University of British Columbia. Supervisor: Mark Schmidt.

Service

- Contributor to the Optimization chapter of the “Machine Learning, Second Edition: A Probabilistic Perspective” book by Kevin Murphy.
- Conference reviewer: AISTATS’19 - ’21, ICLR’18-’21, ICML’17-’20, JMLR’18-’21, IEEE TNNLS, NeurIPS’17-’21, New In ML workshop (NeurIPS’19), OPT-ML workshop (NeurIPS’20).
- 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.
- Conference volunteer for NIPS’16.
- Co-organizer of reading groups at UBC: Machine learning (2018), Deep learning (2015).
- Conference sub-reviewer for SIGMOD’18, AAAI’17,’18, WWW’17, SDM’15,’17, KDD’16,’17, ICDM’14.

Awards

- 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 (Top 12%) for ICLR 2021, ICML 2021.
- Top 30% of highest scoring reviewers for NeurIPS 2018, 2019.

Employment

- **University of Alberta** Edmonton, Canada
Postdoctoral Researcher *November 2020 - December, 2021*
 - Supervisor: Csaba Szepesvári
- **Mila, Université de Montréal** Montreal, Canada
Postdoctoral Researcher *January 2019 - October, 2020*
 - Supervisor: Simon Lacoste-Julien
- **Inria Paris** Paris, France
Intern *May 2018 - July, 2018*
 - Supervisor: Francis Bach
- **Apple** Seattle, USA
Intern *June 2017 - August, 2017*
 - Supervisors: Hoyt Koepke, Srikrishna Sridhar
- **Limespot** Vancouver, Canada
Machine Learning Consultant *March - May 2017; Sept, 2017 - Oct, 2017*
- **Adobe Research** San Jose, USA
Data Scientist Intern *Aug 2016 - Oct 2016*
 - Supervisors: Branislav Kveton, Zheng Wen, Mohammad Ghavamzadeh
- **University of British Columbia** Vancouver, Canada
Teaching Assistant *Sep 2013 - Dec 2018*
- **Siemens Corporate Research and Technologies** Bangalore, India
Research Engineer, Parallel Systems *July 2012 - June 2013*
 - Supervisors: Nagavijayalakshmi Vydyanathan, Amit Kale, Saptarshi Das
- **Siemens Corporate Research and Technologies** Bangalore, India
Research Intern, Parallel Systems *January 2012 - June 2012*
 - Supervisors: Nagavijayalakshmi Vydyanathan, Amit Kale
- **Birla Institute of Technology and Science, Pilani** Goa, India
Teaching Assistant *Aug 2012 - Dec 2012*
- **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.

Talks

- “Towards Noise-adaptive, Problem-adaptive Stochastic Gradient Descent”, Mila, Montreal, November 2021.
- “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”, Mila, Montreal, August 2020.
- “Painless Stochastic Gradient: Interpolation, Line-Search, and Convergence Rates”
 - Huawei Research, Montreal, October 2019.
 - 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.
- “Model-Independent Online Learning for Influence Maximization”, International Conference on Machine Learning, 2017.
- “Horde of Bandits using Gaussian Markov Random Fields”, International Conference on Artificial Intelligence and Statistics, 2017.
- “Modeling Non-Progressive Phenomena for Influence Propagation” Conference on Online Social Networks, 2014.
- “Fast 3D Structure Localization in Medical Volumes using CUDA-enabled GPUs”, International Conference on Parallel, Distributed and Grid Computing, 2012.

References

- Mark Schmidt (schmidtm@cs.ubc.ca), Associate Professor, University of British Columbia.
- Csaba Szepesvári (csaba.szepesvari@gmail.com), Professor, University of Alberta.
- Nicolas Le Roux (nicolas.le.roux@gmail.com), Research Scientist, Microsoft Research.
- Simon Lacoste-Julien (slacoste@iro.umontreal.ca), Associate Professor, Université de Montréal.