**Sharan Vaswani**
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## Current Position

- **University of Alberta** — Edmonton, Canada
  *Postdoctoral Researcher* — *November 2020 -*
  - Supervisor: Csaba Szepesvári

## 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**

**[R3]** "SVRG meets AdaGrad: Painless Variance Reduction", Benjamin Dubois-Taine*, **Sharan Vaswani***, Reza Babanezhad, Mark Schmidt, Simon Lacoste-Julien. arXiv, 2021. *Under conference submission.*

**[W5]** "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)**. *Under conference submission.*

**[C12]** "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)**.

**[W4]** "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)**.

**[C11]** "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)**.

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

[**C10**] "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.

[**W2**] "Accelerating boosting via accelerated greedy coordinate descent", Xiaomeng Ju*, Yifan Sun*, **Sharan Vaswani***, Mark Schmidt. "Optimization for Machine Learning" workshop, NeurIPS 2019.

[**C9**] "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**

[**C8**] "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.

[**J2**] "Combining Bayesian Optimization and Lipschitz Optimization", Mohamed Osama Ahmed, **Sharan Vaswani**, Mark Schmidt. European Conference on Machine Learning (ECML) Journal Track, 2020.

[**C7**] "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.

[**R2**] "New Insights into Bootstrapping for Bandits", **Sharan Vaswani**, Branislav Kveton, Zheng Wen, Anup Rao, Mark Schmidt, Yasin Abbasi-Yadkori. arXiv:1805.09793, 2018.

[**C6**] "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.

[**C5**] "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.

[**C4**] "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)**

[**W1**] "Influence Maximization with Bandits", **Sharan Vaswani**, Laks Lakshmanan, Mark Schmidt. "Networks in Social and Information Sciences" workshop, NIPS, 2015.

- **Social Networks**

[**R1**] "Adaptive Influence Maximization in Social Networks: Why Commit when You can Adapt?", **Sharan Vaswani**, Laks V.S. Lakshmanan. arXiv:1604.08171, 2016.

[**C3**] "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**

[**C2**] "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.

[**J1**] "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.

[**C1**] "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.
  - Frederik Kunstner, PhD, 2019-, University of British Columbia. Supervisor: Mark Schmidt.
  - Jose Gallego, PhD, 2018-. Mila, Université de Montréal. Supervisor: Simon Lacoste-Julien.
  - Benjamin Paul-Dubois-Taine, MSc, 2020-, Paris-Saclay University.
  - Riashat Islam, PhD, 2017-, Mila, McGill University. Supervisor: Doina Precup.
  - Haque Ishfaq, PhD, 2018-, Mila, McGill University. Supervisor: Doina Precup.

## 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-'20, IEEE TNNLS, NeurIPS'17-'20, 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.
- Top 30% of highest scoring reviewers for NeurIPS 2018, 2019.

## Employment

- **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

- "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.
- Simon Lacoste-Julien (slacoste@iro.umontreal.ca), Associate Professor, Université de Montréal.
- Branislav Kveton (bkveton@google.com), Research Scientist, Google Research.
- Laks V.S Lakshmanan (laks@cs.ubc.ca), Professor, University of British Columbia.