Seong-Hwan Jun
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EDUCATION

University of British Columbia
PhD in Statistics, 2013 - 2017
Thesis: Scalable Sequential Monte Carlo Methods and Probabilistic Approach to Combinatorial Problems
Advisors: Prof. Alexandre Bouchard-Côté and Prof. Jim Zidek

MSc. in Statistics, 2011 - 2013
Thesis: Entangled Monte Carlo
Advisor: Prof. Alexandre Bouchard-Côté

University of Waterloo
Bachelor of Mathematics, Honours, Co-op, 2004 - 2009
Major: Computer Science
Minor: Combinatorics and Optimization

REFEREED PUBLICATION

1. E. Haber, L. Ruthotto, E. Holtham, **S-H. Jun**. (2018). Learning across scales – A multiscale method for Convolution Neural Networks. AAAI Conference on Artificial Intelligence. To appear.
   Acceptance rate: 933/3800.
2. **S-H. Jun**, A. Bouchard-Côté, S. Wong, and J. Zidek. (2017). Sequential Graph Matching with Sequential Monte Carlo. International Conference on Artificial Intelligence and Statistics (AISTATS). 20: 1075–1084.
   Acceptance rate: 168/530.
3. **S-H. Jun** and A. Bouchard-Côté. (2014). Memory (and Time) Efficient Sequential Monte Carlo. International Conference in Machine Learning (ICML). 31: 514–522.
   Acceptance rate: 310/1238.
4. **S-H. Jun**, L. Wang and A. Bouchard-Côté. (2012). Entangled Monte Carlo. Advances in Neural Information Processing Systems (NIPS). 25: 2735–2743.
   Acceptance rate: 370/1467. Spotlight talk: 72/1467.

MANUSCRIPT UNDER REVIEW

1. **S-H. Jun**, A. Bouchard-Côté, S. Wong, J. Zidek, and Z. Pirouz. *Sequential Decision Model for Inference and Prediction on Non-Uniform Hypergraphs with Application to Knot Matching from Computational Forestry.* Under review at Annals of Applied Statistics. arXiv:1708.07592.

MANUSCRIPT IN PREPARATION

1. **S-H. Jun**, A. Chaudhury, A. Roth, and J. Lagergren. *Joint inference of copy number variation and single cell cancer phylogeny from single cell RNA and bulk sequencing data.*
2. H. Koptagel, **S-H. Jun**, and J. Lagergren. *Single cell trees: probabilistic error correction for single cell whole genome sequencing.*

3. **S-H. Jun** and A. Bouchard-Côté. *Software for statistical inference for large scale problems in phylogenetics.* In preparation for submission to Journal of Statistical Software.
4. **S-H. Jun** and A. Bouchard-Côté. *Streaming Particle Filter.* In preparation for submission to Biometrika.
5. Y. Liu, D. Dinsdale, **S-H. Jun**, C. Briercliffe, and J. Bone. *Statistical Learning of Basketball Strategy: The Potential Field Approach.* In preparation for submission to Journal of Quantitative Analysis in Sports.

PRESENTATIONS AND TALKS

- Sequential Graph Matching and Streaming Sequential Monte Carlo. (2017). The Joint Statistical Meetings. Joint work with S. Wong, J. Zidek, and A. Bouchard-Côté.
- Statistical Learning of Basketball Strategy: The Potential Fields Approach. (2016). The Cascadia Symposium on Statistics and Sports. Joint work with Y. Liu, D. Dinsdale, C. Briercliffe, and J. Bone.
- Memory (and Time) Efficient Sequential Monte Carlo. (2014). International Conference on Machine Learning (ICML) 31. Joint work with A. Bouchard-Côté. Oral presentation.
- Exploring Spatial and Temporal Heterogeneity of Environmental Noise in Toronto. (2013). 41st annual meeting of the Statistical Society of Canada. Joint work with C. Casquilho, N. Fishbane, Y. Nie. Winner of the case study competition.
- Using a Stochastic Map View of Sequential Monte Carlo for Memory and Network Efficiency. (2013). Randomized Algorithm Workshop at Advances in Neural Information Processing Systems (NIPS) 26. Joint work with A. Bouchard-Côté.
- Importance sampling, sequential importance sampling, and bootstrap particle filter. (2012). The semi-annual UBC-SFU joint seminar. Oral presentation.

TEACHING EXPERIENCES

Academic Assistant Aug 2016 - Apr 2017
Master of Data Science Program, UBC
Developed assignment and lab materials for courses: supervised learning, web and cloud computing, and causal inference. Example of topics covered:

- Analyzing Google N-grams using Map-Reduce on Amazon Web Services (AWS)
- Training deep neural network with Tensorflow using GPU instances on AWS
- Design of an A/B testing for web interface using R Shiny

Head Teaching Assistant Sept 2015 - Dec 2015
Intermediate Statistics for Applications, UBC (Undergraduate level)

- Lead a team of junior teach assistants.
- Development of course contents for undergraduate statistics course with focus on applications.

Teaching Assistant Jan 2014 - Apr 2014
Statistical Modelling with Stochastic Processes, UBC (Ph.D level)

- Provided tutorial on development and debugging of Bayesian inference code

Teaching Assistant Jul 2012 - Dec 2012
Methods for Statistical Learning, UBC (MSc. level)

- Developed course contents for various topics: boosting, generalized additive models, splines, regression trees and random forest, LASSO, K-NN classifier

INDUSTRY EXPERIENCES

Software Developer and Co-founder Sept 2008 - May 2011
Leadconstructor Inc, Toronto, ON

- Software development for quality control and managing of large scale constructions using Java, ASP .NET and C# technologies

Software Engineering (Internship) Jan 2008 - Apr 2008
Qualcomm, San Diego, CA

- Development of embedded software in CDMA chip using C language.

Java Software Developer (Internship) Apr 2007 - Aug 2007
Endeca Technologies (acquired by Oracle Corporation), Cambridge, MA

SERVICES

Reviewer of the Neural Information Processing Systems 2017-
Reviewer of the International Conference on Machine Learning 2017-
Senior consultant for statistical consulting services 2015 - 2017
Manager of the statistical consulting services 2016 - 2017
Statistics Department, UBC, Vancouver, BC

- Served in the steering committee
- Developed operating guidelines for the consulting services
- Recruited and provided mentorship for junior consultants

Graduate student seminar organizer 2014 - 2016
Statistics Department, UBC, Vancouver, BC

- Invited speakers for the weekly running graduate student seminar.
- Organized student run lecture series. Topics: parallel computing in R, statistical analysis of network data, deep neural networks, and sports analytics.

AWARDS

2018-19	$90,000 CAD	NSERC Postdoctoral Fellowship
2017	$850 CAD	CRM Industrial Problem Workshop Travel Award
2017	$1,000 USD	AISTATS Travel Award
2013-17	$18,000 CAD	Faculty of Science Graduate Award (Ph.D)
2014	$500 USD	ICML Travel Award
2013	$500 CAD	SSC Case Study Competition Winner
2011-13	$1,000 CAD	Faculty of Science Graduate Award (MSc.)
2012	$400 USD	NIPS Travel Award
2011	$5,500 CAD	NSERC Undergraduate Student Research Award

COMPUTER SKILLS

Programming Languages: Java, R, Python, and C/C++
Computing Platforms: Mac OS X, Ubuntu, Amazon Web Services, Google Cloud
Softwares: TensorFlow, ImageJ, OpenCV-Python, LaTeX, RStudio, Eclipse, Xcode