Curriculum Vitae of Steven Winter

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EDUCATION

Master's in Statistical Science (Expected June 2021)
Duke University, Durham, North Carolina, USA

Bachelor of Science (Honours), Mathematics (June 2019)
University of Alberta, Edmonton, Alberta, Canada

TECHNICAL EXPERTISE

Languages: Fluent in R, Python, MATLAB. Comfortable with Git, Stan, Bash.
Operating Systems and Software: Windows, Windows Office, Unix.

ARTICLES

Winter, S., Zhengwu, Z., Dunson, D., 2020. Multi-scale graph principal component analysis for connectomics. Submitted to NeuroImage.
Fang, X., Winter, S., Kashlak, A,. 2020. Sparse covariance and precision random design regression. To appear in AMMCS 2019 preceedings.

RESEARCH EXPERIENCE

Research Assistant (Statistics) September 2019 to present
Duke University, Durham, NC, USA

- Developed a novel method for relating multiple summarizies of brain connectivity to observed traits and behaviours.
- Lead author on the paper "Multi-scale graph principal component analysis for connectomics," under review for NeuroImage.
- Now developing a unifying theory to link loss- and model- based inference via Gibbs posteriors, focusing on applications to multi-stage inference.

Research Assistant (Statistics) May 2019 to August 2019
University of Alberta, Edmonton, AB

- Developed a generalization of random design linear regression using a modern method for estimating sparse covariance matrices.
- Performed thorough numerical tests, ultimately contributing to the short paper "Sparse covariance and precision random design regression" to appear in AMMCS 2019 preceedings.

Research Assistant (Statistics) May 2019 to August 2019
University of Alberta, Edmonton, AB

- Wrote a talk explaining how to correctly handle time dependent covariates in survival analysis.
- Investigated methods for resolving class imbalances common to rare disease data while respecting causality.

Research Assistant (Particle Physics, IceCube) May 2018 to April 2019
University of Alberta, Edmonton, AB

- Developed new methods for maximizing eight dimensional, non-smooth likelihood functions which appear when reconstructing low energy neutrino tracks.
- Optimized these methods to cope with the petabytes of data at IceCube.
- Communicated progress to the local and global community.
- Worked as part of a large, diverse team and mentored incoming students.

- All work done with Python in a Unix environment.

Researcher (Mathematics, NSERC) May 2018 to September 2018
University of Alberta, Edmonton, AB

- Disproved several conjectures relating the structure of free Banach lattices to the structure of Banach lattices induced by multinormed vector spaces.
- Created a weekly research schedule to ensure goals were achieved.

Researcher (Mathematics, NSERC) May 2017 to September 2017
University of Alberta, Edmonton, AB

- Classified all representations induced by tensoring a particular quantum group with a particular vertex operator algebra.
- Disproved a conjecture regarding the equivalence of two constructions common in string theory research.
- Worked on a team with other undergraduate students.

Researcher (Mathematics, NSERC) May 2016 to August 2016
University of Alberta, Edmonton, AB

- Successfully constructed explicit representations of the generalized Heisenberg group over finite fields of characteristic $p > 2$.

Research Assistant (Plasma Physics) May 2015 to May 2017
University of Alberta, Edmonton, AB

- Configured specialized equipment to facilitate measurement of temperature inside welding arcs.
- Trained other students in proper data collection methodologies.
- Wrote analysis code in Python.

OTHER EXPERIENCE
Teaching Assistant, Statistics (September 2019 to December 2019)
Decima Robinson Support Centre *Tutor*, Statistics (September 2018 to May 2019)

SCHOLARSHIPS AND AWARDS
Duke Statistical Science MS Fellowship (offered to two strong applicants, 2019-2021)
3x Natural Sciences and Engineering Research Council (NSERC) Undergraduate Student Research Initiative recipient (2016, 2017, and 2018)
Jason Lang Outstanding Achievement Scholarship (2015-2016)
University of Alberta Academic Excellence Scholarship (2014-2015)
University of Alberta Academic Excellence in Science Scholarship (2014-2015)
CHHMA Recognition of Outstanding Achievement Scholarship (2014-2015)
Canadian Governor General's Academic Medal (2014)

PROFESSIONAL MEMBERSHIPS
American Statistical Association
International Society for Bayesian Analysis