

Susanne (Morrill) Bradley

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EDUCATION

- 2015-present **Ph.D. in Computer Science**, University of British Columbia, Vancouver
Supervised by Chen Greif
Thesis (proposed): *Preconditioners for Double Saddle Point Systems*
- 2013-2015 **M.Sc. in Computer Science**, University of British Columbia
Supervised by Dinesh Pai
Thesis: *Applications of Machine Learning in Sensorimotor Control*
- 2009-2013 **B.Sc. (Honours) in Mathematics**, Queen's University, Kingston
Statistics focus with a minor in computer science

TEACHING AND RESEARCH INTERESTS

- Numerical linear algebra
- Scientific computing
- Statistics and data analysis
- Algorithms and data structures

AWARDS AND HONOURS

RESEARCH/ACADEMIC AWARDS

- 2015 **Four Year Doctoral Fellowship** (\$91,000)
Awarded to incoming UBC Ph.D. students based on academic excellence
- 2015 **NSERC PGS-D Scholarship** (\$63,000)
Awarded to high-calibre students engaged in doctoral programs in the natural sciences or engineering
- 2013 **UBC CS Merit Award** (\$10,000)
Awarded to outstanding incoming students to the UBC computer science graduate program
- 2013 **NSERC CGS-M Scholarship** (\$17,500)
Awarded to outstanding students pursuing Master's studies at a Canadian university
- 2013 **NSERC Undergraduate Student Research Award** (\$4,500)
Provides financial support to allow undergraduate students to gain research experience in an academic setting
- 2012 **Nellie and Ralph Jeffery Award in Mathematics** (\$980)
Awarded annually to three undergraduate students majoring in Mathematics or Statistics at Queen's University, based on department recommendation

- 2012 **NSERC Undergraduate Student Research Award** (\$4,500)
Provides financial support to allow undergraduate students to gain research experience in an academic setting
- 2011 **Nan Skelding Scholarship** (\$1,200)
Awarded on the basis of academic excellence to female students entering third year in Mathematics and Statistics at Queen's University

TEACHING AWARDS

- 2019 **Killam Graduate Teaching Assistant Award** (\$1,000)
Awarded to 16 graduate students who make outstanding contributions to teaching and learning at UBC
- 2017 **UBC Computer Science Department Teaching Assistant Award**
Awarded based on high scores in student teaching evaluations

PUBLICATIONS

PEER-REVIEWED PUBLICATIONS

1. P. Sachdeva, S. Sueda, **S. Bradley**, M. Fain, and D.K. Pai. Biomechanical simulation and control of hands and tendinous systems. *ACM Transactions on Graphics*, 34(4):42:1-42:10, July 2015.
2. C. Lin and **S. Morrill**. Design of variable resolution for model selection. *Journal of Statistical Planning and Inference*, 155, 127-134, December 2014.

PREPRINTS AND TECHNICAL REPORTS

3. **S. Bradley**. *Ideal preconditioners for saddle point systems with a rank-deficient leading block*. arXiv:1807.08590v2 [cs.NA], July 2018.

THESES AND DISSERTATIONS

4. **S. Bradley**. *Applications of machine learning in sensorimotor control*. Master's thesis, University of British Columbia, 2015.

RESEARCH EXPERIENCE

- 2015-present **Ph.D. Student**, University of British Columbia
- Scientific computing laboratory, computer science department
 - Current work: developing preconditioners for double saddle point systems
 - RPE (research proficiency evaluation) project: adapted the FEAST algorithm for use with iterative linear solvers to compute eigenpairs of large, sparse matrices
- 2013-2015 **Graduate Research Assistant**, University of British Columbia
- Sensorimotor systems laboratory, computer science department
 - Formulated and designed software implementations of novel methods for control of biomechanical systems
 - Largest project: combined MATLAB/C++ framework for simulation and fine motor control of an anatomically-based robotic hand

- 2012-2013 **Undergraduate Research Assistant**, Queen's University
- Statistics department
 - Engineered software to compute theoretically optimal experimental designs
 - Designed a program to generate optimally efficient training data points for computer experiments

TEACHING EXPERIENCE

SESSIONAL LECTURER (at UBC)

- Summer 2019 **Instructor:** CPSC 320 (Intermediate Algorithm Design and Analysis)
- Class size: 146
 - Hours taught: 7.5/week
 - Instructor effectiveness rating: 4.8/5.0, based on 69 evaluations
- Winter 2017 **Instructor:** CPSC 320 (Intermediate Algorithm Design and Analysis)
- Class size: 63
 - Hours taught: 3/week
 - Instructor effectiveness rating: 4.3/5.0, based on 26 evaluations

TEACHING ASSISTANT (at UBC)

- Winter 2019 **Lead TA:** CPSC 103 (Introduction to Systematic Program Design)
- Fall 2018, Fall 2017, Fall 2016 **Lead TA:** CPSC 320 (Intermediate Algorithm Design and Analysis)
- Winter 2018 **TA:** CPSC 542G (Topics in Numerical Computation)
- Winter 2016, Winter 2015 **TA:** CPSC 303 (Numerical Approximation and Discretization)

OTHER

- 2018-present **Instructional Skills Workshop (ISW) Facilitator:** UBC Centre for Teaching, Learning, and Technology

SERVICE

- 2019-present **Committee member**, UBC computer science faculty recruiting committee (research stream)
- 2018-present **Organizer**, SCAIM (Scientific Computing and Applied and Industrial Math) seminar series, University of British Columbia
- 2018-present **Lab manager**, Scientific Computing Lab, University of British Columbia
- 2018 **Graduate adjudicator**, MURC (Multidisciplinary Undergraduate Research Conference), University of British Columbia
- 2017-present **Advisory board member** for the development of Tapestry (new tool for online course content production), University of British Columbia
- 2017-2018 **Student mentor**, Ph.D. Connections, University of British Columbia

- 2017 **Local organizer**, International Conference on Preconditioning Techniques for Scientific and Industrial Applications, University of British Columbia
- 2016-2017 **Panel member**, Thesis Boot Camp, UBC Graduate Pathways to Success and Centre for Writing and Scholarly Communication

CONFERENCES AND WORKSHOPS ATTENDED

- *Facilitator Development Workshop*. University of British Columbia, Vancouver, BC, December 3-7, 2018.
- *Instructional Skills Workshop*. University of British Columbia, Vancouver, BC, May 5, 12, and 13, 2018.
- *International Conference on Preconditioning Techniques for Scientific and Industrial Applications*. University of British Columbia, Vancouver, BC, July 31-August 2, 2017.
- *AARMS Workshop on Domain Decomposition*. Dalhousie University, Halifax, NS, August 4-8, 2015.
- *SIGGRAPH 2014*. Vancouver, BC, August 10-14, 2014.

TECHNICAL/PROGRAMMING SKILLS

Advanced Knowledge: MATLAB, R, LaTeX

Intermediate Knowledge: Python, Word, PowerPoint, Java, Haskell

Basic Knowledge: Prolog, C, C++, SAS, Bash, SVN, GitHub, OpenGL

PROFESSIONAL MEMBERSHIPS

- Society for Industrial and Applied Mathematics (SIAM)
- Association for Computing Machinery (ACM)