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

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)