Susanne (Morrill) Bradley

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EDUCATION

2015-present **Ph.D. in Computer Science,** University of British Columbia, Vancouver
Research specialization: numerical linear algebra
Supervisor: Dr. Chen Greif

2013-2015 **Master of Science in Computer Science,** University of British Columbia
Thesis: "Applications of Machine Learning in Sensorimotor Control"
Supervisor: Dr. Dinesh Pai
GPA: 87/100 (A)

2009-2013 **Bachelor of Science (Honours) in Mathematics,** Queen's University, Kingston
Statistics focus with a minor in computer science
GPA: 4.1/4.3 (A)

SCHOLARSHIPS AND AWARDS

2017 **UBC Computer Science Graduate TA Award**
2015-2019 **Four Year Doctoral Fellowship** ($91,000)
2015-2018 **NSERC Postgraduate Scholarship (D)** ($63,000)
2013-2014 **NSERC Alexander Graham Bell Canada Graduate Scholarship (M)** ($17,500)
2013 **University of British Columbia Computer Science Merit Award** ($10,000)
2012, 2013 **NSERC Undergraduate Student Research Award** (received twice; $4,500)
2012 **Nellie and Ralph Jeffery Award in Mathematics** ($980)
2011, 2012 **Dean's Honour List with Distinction** for GPA in top 3% of faculty
2011 **Nan Skelding Scholarship** ($1,200)

TECHNICAL/PROGRAMMING SKILLS

Basic Knowledge: Prolog, C, C++, SAS, Linux, SVN, OpenGL
Intermediate Knowledge: Python, Word, PowerPoint, Java, Haskell
Advanced Knowledge: MATLAB, R, LaTeX

TEACHING AND RESEARCH INTERESTS

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

TEACHING EXPERIENCE

Jan-Apr 2017 **Sessional Lecturer,** University of British Columbia
Course: CPSC 320 (Intermediate Algorithm Analysis and Design)

- Delivered three lectures per week to a class of 64 students in an active-learning format
- Developed course materials in collaboration with two other instructors
- Teaching evaluation score: 4.2/5.0 (department average score is between 3.5 and 4.0)

Jan 2015-Dec 2016; Sep 2017-present **Graduate Teaching Assistant,** University of British Columbia

- Teaching assistant for various advanced undergraduate and graduate courses
- Responsibilities have included grading assignments and tests, holding office hours, designing assignments, preparing and delivering tutorials, managing other teaching assistants, and delivering guest lectures
- Most recent student evaluation scores: received 4.98/5.0 for instructional effectiveness based on N=93 evaluations for CPSC 320

Jan-Apr 2013 **Undergraduate Teaching Assistant,** Queen's University
Courses: CISC 121 (Introduction to Computing Science) and STAT 269 (Statistics and Probability II)

- Graded assignments and quizzes
- Led lab sessions

RESEARCH EXPERIENCE

Sept 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

Sept 2013-Aug 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

May 2012-Aug 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 deterministic computer experiments

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.

CONFERENCE PRESENTATIONS

1. "Biomechanical simulation and control of hands." With P. Sachdeva, S. Sueda, and D.K. Pai. *Northwest Biomechanics Symposium*, University of British Columbia, Vancouver, BC, June 3-4, 2016.
2. "Biomechanical simulation and control of hands and tendinous systems." With P. Sachdeva, S. Sueda, M. Fain, and D.K. Pai. *SIGGRAPH 2015*, Los Angeles, CA, August 9-13, 2015.

SERVICE

- Advisory board member for development of Tapestry, a new tool for online course content development; October 2017-present.
- Graduate adjudicator for MURC (Multidisciplinary Undergraduate Research Conference), University of British Columbia, March 17, 2018.
- Panel member: *Graduate Pathways to Success and the Center for Writing and Scholarly Communication – Thesis Boot Camp*. University of British Columbia. November 2017, April 2017, and November 2016.
- Local organizer: *International Conference on Preconditioning Techniques for Scientific and Industrial Applications*. University of British Columbia, Vancouver, BC, July 31-August 2, 2017.

CONFERENCES AND WORKSHOPS ATTENDED

- *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.

VOLUNTEER WORK

2017-2018 **Student mentor**, Ph.D. connections, University of British Columbia

- Participated in a lunch program by Graduate and Postdoctoral Studies to connect first-year graduate students with senior graduate students and staff
- Advised students on living at UBC, succeeding in a Ph.D., and building positive relationships with peers and supervisors

2009-2013 **Peer Mentor,** Queen's University

- Met with struggling students to aid with academic comprehension
- Designed personalized study and lifestyle plans, considering students' skills and learning styles

May-August 2011 **Schoolteacher**, Nkoile Primary School, Kajiado County, Kenya

- Taught a semester of grade 4 English, grade 5 science, and grade 7 English and mathematics
- Designed and graded homework assignments
- Graded end-of-year standardized exams

PROFESSIONAL MEMBERSHIPS

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