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)