

# Susanne (Morrill) Bradley

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## EDUCATION

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

## TEACHING AND RESEARCH INTERESTS

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

## AWARDS AND HONOURS

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### 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

- 2020 **UBC Computer Science Department Faculty Teaching Award**  
*Awarded to department instructors based on high scores in student teaching evaluations*
- 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 to department teaching assistants based on high scores in student teaching evaluations*

## PUBLICATIONS

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#### PEER-REVIEWED PUBLICATIONS

1. P. Belleville, S.A. Wolfman, **S. Bradley**, and C. Heeren. Inverted Two-Stage Exams for Prospective Learning. *ACM Special Interest Group on Computer Science Education (SIGCSE)*, 51, 720-738, February 2020.
2. 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 (SIGGRAPH)*, 34(4):42:1-42:10, July 2015.
3. 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

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

#### THESES AND DISSERTATIONS

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

## RESEARCH EXPERIENCE

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2015-present **Ph.D. Student**, University of British Columbia

- Scientific computing laboratory, computer science department
- Current work: developing preconditioners for double saddle point systems

- 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

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### SESSIONAL LECTURER (at UBC)

- Summer 2019 **Instructor:** CPSC 320 (Intermediate Algorithm Design and Analysis)
- Class size: 146
  - Lecture hours: 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
  - Lecture hours: 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

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- 2019-present **Webmaster**, Scientific Computing Lab, University of British Columbia
- 2019-2020 **Committee member**, UBC computer science faculty recruiting committee (research stream)
- 2018-2020 **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

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- *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

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**Advanced Knowledge:** MATLAB, LaTeX

**Intermediate Knowledge:** Python, R, Markdown, Word, PowerPoint, Java, Haskell

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

## PROFESSIONAL MEMBERSHIPS

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

## LEAVES OF ABSENCE

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- Maternity leave: June 2020 to April 2021