

Curriculum Vitae

Saumya Sinha

CONTACT INFORMATION	University of Washington Department of Applied Mathematics Lewis Hall, Box 353925 Seattle, WA - 98105	Email: saumya@uw.edu Phone: + 206 489 6712
INTERESTS	Stochastic optimization under uncertainty, robust optimization, dynamic programming, mathematical modeling.	
EDUCATION	<p>Ph.D., Applied Mathematics (Advanced Data Science Option) University of Washington, Seattle, WA, USA. September, 2013 - present. <i>Cum. GPA: 3.83/4.0</i> Advisor: Archis Ghatge Research: Solution methods for robust Markov decision processes and application to healthcare and business analytics, optimization under parameter uncertainty.</p> <p>M.S., Applied Mathematics University of Washington, Seattle, WA, USA. September, 2013 - March, 2015. <i>Cum. GPA: 3.85/4.0</i> Coursework in convex, network, and numerical optimization, mathematical programming, machine learning, data analysis.</p> <p>M.Sc., Mathematics Tata Institute of Fundamental Research, Centre for Applicable Mathematics (TIFR-CAM), Bangalore, India. August, 2011 - July, 2013. <i>Cum. Grade: 83.05 %</i> Coursework in analysis, probability and statistics, advanced differential equations.</p> <p>B.Sc. (Honors), Mathematics St. Stephen's College, University of Delhi, Delhi, India. July, 2008 - June, 2011. <i>Cum. Grade: 81.75 %</i></p>	
PUBLICATIONS	<p>S. Sinha, J. Kotas, A. Ghatge. <i>Robust response-guided dosing</i>. Operations Research Letters, 44(3), 394-399, 2016.</p> <p>S. Sinha, A. Ghatge. <i>Policy iteration for robust nonstationary Markov decision processes</i>. Optimization Letters (2016) 10: 1613. doi:10.1007/s11590-016-1040-6.</p>	
CONFERENCES & WORKSHOPS	<p>Industrial Mathematics Workshop - July 2017, Institute for Mathematics and its Applications</p> <p>INFORMS Applied Probability Society Conference - July 2017, Evanston, IL</p> <p>SIAM Conference on Optimization - May 2017, Vancouver, BC, Canada</p> <p>Visiting student at International Centre for Theoretical Sciences - September 2016, India Studied theoretical and numerical aspects of matrix completion problems in machine learning.</p> <p>SAMSI Optimization Summer School - August 2016, Statistical & Applied Mathematical Sciences Institute</p> <p>INFORMS Annual Meeting - November 2015, Philadelphia, PA</p> <p>Software Carpentry Workshop - January 2015, University of Washington</p> <p>Advanced Instructional School on Analysis and Geometry - July 2013, TIFR-CAM</p> <p>Mathematical Panorama Lectures: Eigenvalues of Operators with Gaps and Applications to the Dirac Operator - October - November, 2012, TIFR-CAM</p>	

SEMINARS &
PROJECTS

Airline Revenue Management using Mixed Integer Programming
Final Course Project, Integer Programming, Winter, 2017

Binary Classification using Stochastic Dual Coordinate Ascent
Final Course Project, Machine Learning, Fall, 2016

Influence of Food Access and Poverty on Obesity
Final Course Project, Introduction to Data Science, Fall, 2015

Adaptive Mesh-Refinement for 1-D hyperbolic Partial Differential Equations
Final Course Project, Conservation Laws and Finite Volume Methods, Winter, 2015

Approximate Solution of Weakly-Coupled Markov Decision Processes: Application to Allocation Problems
Final Seminar, Reading Course, Autumn, 2013

Stability and Bifurcation Behavior in Non-linear Dynamical Systems: Logistic Map
Final Course Project, Numerical Analysis and Scientific Computing, Autumn, 2012

Hausdorff Dimension of the Cantor Set
Final Course Project, Measure Theory, Winter, 2012

Web Search Algorithms: Google PageRank
Final Course Project, Linear Algebra, Autumn, 2011

Isomorphism in Groups of Infinite Cardinality
Final Course Project, Abstract Algebra II, March, 2011

Optimization Algorithms: Theory of the Simplex Method.
Final Course Project, Linear Programming & Game Theory, March, 2011

WORK
EXPERIENCE

Instructor, University of Washington, Seattle.

- Amath 352, Applied Linear Algebra And Numerical Analysis - *Summer, 2017*
- Amath 353, Partial Differential Equations and Waves - *Spring, 2017*

Teaching Assistant, University of Washington, Seattle.

Delivered lectures/recitations, led group activities, planned and conducted problem-solving sessions, graded homework, quizzes and exams, and held office hours.

- Amath 482/582, Computational Methods for Data Analysis - *Winter, 2017*
- Amath 403/503, Methods for Partial Differential Equations - *Spring, 2016*
- Amath 501, Vector Calculus and Complex Variables - *Fall, 2015*
- Amath 383, Introduction to Continuous Mathematical Modeling - *Summer, 2015*
- Amath 352, Applied Linear Algebra And Numerical Analysis - *Summer, 2015*
- Amath 351, Introduction to Differential Equations and Applications - *Summer, 2015*
- Amath 569, Advanced Methods for Partial Differential Equations - *Spring, 2015*
- Amath 383, Introduction to Continuous Mathematical Modeling - *Winter, 2015*
- Math 111, Algebra with Applications - *Fall, 2014 and Winter, 2014*
- Math 125, Calculus with Analytic Geometry II - *Fall, 2013*

Undergraduate Research Mentor, TIFR CAM, Bangalore, India. May, 2013

Assisted in a summer-long research program for undergraduate students. Guided 20 students in designing models for optimal town-planning using network structure.

PROFESSIONAL
SERVICE &
OUTREACH

Volunteer

- University of Washington Math Fair, *March, 2014 & December, 2013*. Conducted Math-based games and activities for students in third to sixth grade at local elementary schools, along with other graduate students.

- Julia Robinson Math Festival, *March, 2014 & April, 2015*. Led Math-based activity tables at day-long event for 4th to 12th grade students at the University of Washington
- Math Hour Olympiad, *June, 2014 & June, 2015*. Served as a judge for this advanced Math competition for 6th to 10th graders.
- Mathcounts, *February, 2015*. Assisted with scoring for Math-based competition for middle-school students.
- Pacific Science Center, Seattle, *March, 2016*. Led a Math-based activity-table for school-children of varying age-groups as part of the ‘Math Moves’ program.
- Math Olympiad, Seattle, *May, 2016*. Provided grading/scoring support at the Washington State Middle School Math Olympiad.

Organizing Team, Student Seminar Series at TIFR-CAM.

Co-ordinated weekly campus talks on mathematics/science related topics by graduate students.

PROFESSIONAL
SOCIETIES

Member of:

Society for Industrial & Applied Mathematics (SIAM)	2013 - present.
University of Washington Student Chapter of SIAM (SIAM UW)	2013 - present.
Association for Women in Mathematics (AWM)	2014 - present.
Institute for Operations Research & Management Sciences (INFORMS)	2015 - present.
American Mathematical Society (AMS)	2015 - present.
University of Washington Student Chapter of AWM	2016 - present.

AWARDS AND
FELLOWSHIPS

William and Marilyn Conner Endowed Fellowship, a top-Scholar award from the University of Washington Graduate School. (Spring, 2014)

INSPIRE Scholarship, a merit-based award by the Department of Science & Technology, Government of India. (2008)

National Talent Search Scholarship (NTSS), awarded to 500 out of over 100,000 applicants on the basis of multiple written and oral tests, by the National Council for Educational Research and Training, India. (2006)

TECHNICAL
SKILLS

Proficient with MATLAB and Python.

Familiar with AMPL, CPLEX, R, SQL, MS Excel, Mathematica.