

Jonathan Love

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EDUCATION

- (PRESENT) PhD in MATHEMATICS, **Stanford University**
- NOV 2016 Master of Science in MATHEMATICS, **University of Toronto**
- APR 2015 Honours Bachelor of Science in MATHEMATICS, **University of Toronto**
GPA: 3.99/4.00
- JUN 2011 High School Diploma, **Christian Academy in Japan, Tokyo**

COURSEWORK

- TORONTO** | Analysis: single-variable (157), on manifolds (257), real (357/457/458), complex (354/454)
Algebra: linear (240/247), abstract (347/1100/1101), local class field theory (1103), readings in category theory and homological algebra (497)
Number theory: intro (315), algebraic (415), automorphic forms (1199), representations of linear groups (1196), Arakelov geometry (1191)
Other MAT: ODEs (267), history to 1700 (390), combinatorial methods (APM461), logic (309), topology (327), set theory (409), seminar (477)
Other: computer science (CSC108/148), ethics (PHL275), mechanics (PHY254), quantum mechanics (PHY256), psychology (PSY100), political science (POL101), statistics (STA257)
- STANFORD** | algebraic geometry (360), symplectic geometry (257A), analysis (205B), algebra (210A), differential topology (215B)

TEACHING EXPERIENCE

- SEP 2012 | Teaching Assistant at UNIVERSITY OF TORONTO
– AUG 2016 | First-year calculus in Fall 2012 (MAT135), Winter 2013 (MAT187), and 2013-14 (MAT137). Third-year algebra in 2014-15 and 2015-16 (MAT347). Responsibilities included weekly hour-long tutorial sessions, problem set grading, math aid centre hours, and test marking.
- JUL 2014 | Lecturer at CANADA/USA MATHCAMP
JUL 2015 | Designed curriculum and homework for 5-day, 50 minute per day lecture series.
2014: “When Factoring Goes Wrong.” An introduction to algebraic number theory
2015: “Absolute Values: All the Other Ones.” On p -adic absolute values on the rationals
- NOV 2014 | Substitute lecturer: algebra
Prepared and designed accompanying worksheet for 110-minute lecture on a proof of the Sylow Theorems for a third-year algebra course (University of Toronto, MAT347).
- MAR 2014 | Lecturer at MARCH BREAK MATH ACADEMY, Toronto, Canada
MAR 2015 | 5-day, 7 hour per day program for high school students, serving as an introduction to university-level mathematics, covering a broad range of topics of interest. Topics: Gaussian Integers and Unique Factorization Domains ('14), Dynamical Systems and Chaos ('15).
- FEB 2014 | Substitute lecturer: calculus
50-minute lecture on trigonometric substitution for a first-year calculus course (University of Toronto, MAT137).

ACADEMIC TALKS

- NOV 2016 | “Fifty, the function”
90-minute talk for the UofT Math Union on an intuition-based introduction to schemes
- JUL 2016 | “The Music of Zeta”
50-minute colloquium at CANADA/USA MATHCAMP on the connections between the Riemann zeta function and music theory
- NOV 2015 | “What are the Chances?”
2-hour interactive lecture for the UofT Mississauga high school Math Circle; deriving the probability that a random permutation is a derangement, as well as other questions involving permutations and probability
- OCT 2015 | “Finding All the Places”
90-minute lecture on Ostrowski’s Theorem (classifying absolute values on the rationals)
- AUG 2014 | “Facing the Music”
AUG 2015 | Two 50 minute talks at CANADA/USA MATHCAMP on the connections between music and trigonometry, number theory, diophantine approximation, and group theory.
- APR 2015 | “False Proofs”
2-hour interactive lecture for the UofT Mississauga high school Math Circle; going over incorrect proofs and what was wrong with each.
- FEB 2015 | “Don’t underestimate coin flips”
2-hour interactive lecture for the UofT Mississauga high school Math Circle; A preview of continuous probability (including limits, convergence, and the uniform distribution)
- OCT 2014 | “On Rameau’s TREATISE ON HARMONY REDUCED TO ITS NATURAL PRINCIPLES”
20-minute pre-concert talk for the audience of an ARADIA ENSEMBLE concert, on the mathematical underpinnings of this treatise by Jean-Philippe Rameau.
- OCT 2014 | “A Slice of Paradox”
90-minute MUGS (Math Union Guest Speaker) talk at the UNIVERSITY OF TORONTO on Paradoxical Decomposition and the Banach-Tarski Theorem.
- MAR 2013 | “The Ring of Periods”
Two 1-hour lectures given at the GANITA seminar at the University of Toronto, giving an overview of Kontsevich and Zagier’s paper “Periods.”
- JUN 2011 | “I Can’t Do Math: Math Anxiety and its Roots in Early Education”
25-minute presentation at CHRISTIAN ACADEMY IN JAPAN on the sources of math anxiety, issues surrounding elementary-level math education, and potential solutions.

PAPERS

- NOV 2016 | “Field Extensions Generated by Kernels of Isogenies”
Thesis submitted in accordance with the requirements for obtaining the degree of Master of Science from the University of Toronto. Supervised by Jacob Tsimerman. <http://search.proquest.com/docview/1867748857/>

WORK EXPERIENCE

- MAR 2015 | Staff at CANADA/USA MATHCAMP, Tacoma, WA, USA
– AUG 2015 | Responsibilities included pre-camp preparation, planning special events and activities, communicating with the campus, residential advising, and teaching. For information on classes taught, see [Teaching Experience](#).
- SEP 2014 | First-Year Learning Community Peer Mentor at UNIVERSITY OF TORONTO
– APR 2015 | Running bi-weekly 80-minute sessions with first-year students, providing academic support, developmental training, and social activities.
- MAR 2014 | Staff at CANADA/USA MATHCAMP, Portland, OR, USA
– AUG 2014 | See above.
- MAY 2013 | ESL Teacher at BELGRAVE ENGLISH SCHOOL, Tokyo, Japan
– JUN 2014 | May-August 2013 and April-June 2014. Hour-long after-school English classes for Japanese students from kindergarten through grade 12.
- SEP 2009 | Tutor
– JUN 2014 | Private tutoring for 13 tutees. Subjects included mathematics (elementary, jr. high, and high school level), statistics, jr. high science and social studies, English, and SAT prep.
- MAY 2012 | Web Designer/Information Architect at
– AUG 2012 | WORK OF YOUR HAND INTERNATIONAL DEVELOPMENT, Calgary, Canada
Responsibilities included database management, web design, online store management, and programming a point-of-sale system. Primary tools: Excel, vBA, HTML, and WordPress.

VOLUNTEER EXPERIENCE

- SEP 2015 | Webmaster of MATH GRADUATE STUDENTS ASSOCIATION
– APR 2016 | In charge of group e-mail announcements and updates to the online calendar and website. Uses rudimentary knowledge of SSH, HTML, CSS, Javascript, PHP.
- APR 2015 | Treasurer of HART HOUSE CHORUS
– APR 2016 | Responsible for a budget proposal and defense before the Hart House Committee on Budgets. Regular expense tracking, financial decision-making, and processing of reimbursements.
- APR 2012 | Executive Member of UNIVERSITY OF TORONTO MATHEMATICS UNION
– APR 2015 | President Apr 2012–Apr 2013, Program Representative Apr 2013–Apr 2014, and Treasurer Apr 2014–present.
- APR 2013 | Executive Member of UoF T VARSITY CHRISTIAN FELLOWSHIP
– APR 2015 | Organizing weekly social events and small group meetings.
- SEP 2012 | Assistant at THE ART PROJECT, Toronto, Canada
– MAR 2013 | Weekly after-school program for children of low-income families. Included homework assistance and artistic activities.
- SEP 2011 | Athletic Coordinator for UNIVERSITY COLLEGE RESIDENCE COUNCIL
– APR 2012 | Organized social events with an emphasis on health and fitness.
- MAR 2011 | Media Department Staff at CRASH JAPAN
An organization contributing to relief efforts after the March 11 earthquake and tsunami. Responsibilities included updating social media accounts and filming/editing interviews, conferences, and promotional videos.

ACTIVITIES

OCT 2016 – Present	Singer with SYMPHONY SILICON VALLEY CHORALE Joint concerts with the Symphony Silicon Valley orchestra throughout the year.
SEP 2011 – APR 2016	Singer with HART HOUSE CHORUS Biannual concerts (November and March). Choir tours to Montréal (Nov 2013) and Belgium (Nov 2014). Participated in Christmas carolling in the St. Lawrence Market Business Improvement Area, Dec 2013, 2014. Assistant conductor for the chorus in the 2015-16 school year.
JAN 2012 – APR 2016	Violinist and French horn player at SKULE ORCHESTRA Biannual concerts (November and March), as well as performing at “Moment,” an annual Valentine’s Day ball.
SEP 2012, 13, 14	Freshman Orientation Leader for UNIVERSITY COLLEGE Providing support for incoming freshmen, and helping to coordinate and run events. Was House Head Leader in 2014, included extra meetings with head leaders and orientation executives.
MAR 2013	Musical Theatre performer with VICTORIA COLLEGE CHORUS Played Frederic in a performance of Gilbert and Sullivan’s <i>The Pirates of Penzance</i> at the University of Toronto.

SCHOLARSHIPS AND AWARDS

APR 2015	Gordon Cressy Student Leadership Award
SEP 2011, 12, 13, 14	J.S. McLean Scholarship (\$5,000)
SEP 2012, 13, 14	University of Toronto Galois Scholarship in Mathematics (\$3,976)
SEP 2013, 14	In-Course Beatty Scholarship (\$1,500)
SEP 2013, 14	W.W. Sawyer Scholarship in Mathematics (\$1,492.34)
SEP 2014	Norman Robertson Scholarship in Mathematics (\$4,000)
APR 2012, 13, 14	Dean’s List Scholar
MAR 2014, 15	1 st place, UofT Undergraduate Mathematics Competition (\$200)
DEC 2011, 13, 14	Top 500, William Lowell Putnam Mathematical Competition
SEP 2013	Margaret R. & Thomas P. Taylor Award (\$3,485)
SEP 2011	University of Toronto Scholar Award (\$5,000)
JUN 2011	Martin Essenburg Academic Achievement Award (\$1,000)
JUN 2011	PTA Academic Award in MATHEMATICS (\$200)
SEP 2008-JUN 2011	Honour Roll
MAY 2010	AP Scholar with Distinction Award
MAY 2010	EARCOS Global Citizenship Award

LANGUAGES

ENGLISH: Native
JAPANESE: Conversational

COMPUTER SKILLS

Basic Knowledge: VBA, HTML, Python, Mathematica, CSS, PHP, Javascript
Intermediate Knowledge: Excel, Word, PowerPoint, \LaTeX