

## EDUCATION AND EMPLOYMENT

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- 1 SEP 2024 Postdoctoral Scholar, **Leiden University**, Leiden, the Netherlands  
– (ONGOING) Supervisor: Jan Vonk
- 1 AUG 2021 CRM-ISM Postdoctoral Fellow, **McGill University**, Montreal, Canada  
– 31 JUL 2024 Supervisors: Henri Darmon, Eyal Goren, and Michael Lipnowski
- JUN 2021 PhD in MATHEMATICS, **Stanford University**, Stanford, USA  
Advisors: Akshay Venkatesh, Dan Boneh, and Ravi Vakil  
Thesis: “Isogeny Graphs, Zero-cycles, and Modular Forms: Computations over Algebraic Curves and Surfaces”
- Nov 2016 MSc in MATHEMATICS, **University of Toronto**, Toronto, Canada  
Advisor: Jacob Tsimerman  
Thesis: “Field Extensions Generated by Kernels of Isogenies”
- APR 2015 Honours Bachelor of Science in MATHEMATICS, **University of Toronto**, Toronto, Canada

## PAPERS AND PREPRINTS

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1. “Rational configuration problems and a family of curves.” *Journal of Number Theory*, Vol. 269 (2025) pp. 370–396 ([DOI](#))
2. “On elements of prescribed norm in maximal orders of a quaternion algebra” with Eyal Z. Goren. *Canadian Journal of Mathematics*, Published online (2024), 29 pgs ([DOI](#))
3. “Torsion phenomena for zero-cycles on a product of curves over a number field” with Evangelia Gazaki. *Research in Number Theory*, Vol. 10, No. 35 (2024), 19 pgs ([DOI](#))
4. “Root Numbers of a Family of Elliptic Curves and Two Applications.” *Indagationes Mathematicae*, Vol. 35, Issue 3 (2024) pp. 555–569 ([DOI](#))
5. “Rational Equivalences on Products of Elliptic Curves in a Family.” *Journal de Théorie des Nombres de Bordeaux*, Vol. 32, No. 2 (2020) pp. 923–938 ([DOI](#))
6. “Supersingular Curves With Small Non-integer Endomorphisms” with Dan Boneh. In *Proceedings of the Fourteenth Algorithmic Number Theory Symposium*, ed. Steven D. Galbraith. *The Open Book Series*, Vol. 4, No. 1 (2020) pp. 7–22 ([DOI](#))
7. “Hypersurfaces passing through the Galois orbit of a point” with Shamil Asgarli and Chi Hoi Yip. 27 pgs. *Submitted* ([arXiv](#))
8. “On  $\ell$ -torsion in degree  $\ell$  superelliptic Jacobians over  $\mathbb{F}_q$ ” with Wanlin Li and Eric Stubbley. 35 pgs. *Submitted* ([arXiv](#))
9. “Supersingular elliptic curves, quaternion algebras and applications to cryptography” with Eyal Goren. 62 pgs. *Submitted* ([arXiv](#))
10. “Local and local-to-global principles for zero-cycles on geometrically Kummer K3 surfaces” with Evangelia Gazaki. 27 pgs. *Submitted* ([arXiv](#))

11. "Hyperelliptic curves mapping to abelian varieties and Applications to Beilinson's Conjecture for zero-cycles" with Evangelia Gazaki. 27 pgs. *Submitted* ([arXiv](#))
12. "An Arithmetic Variant of Raynaud's Theorem" with Libby Taylor. 16 pgs. *Submitted* ([arXiv](#))

## RECENT AND UPCOMING PRESENTATIONS

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### INVITED

- APR 2025 [The Isogeny Club](#)
- JAN 2025 [Washington University in St. Louis AAG Seminar](#)
- JAN 2025 [University of Pittsburgh ACG Seminar](#)
- DEC 2024 [Groningen Algebra Seminar](#)
- NOV 2024 [KULB-seminars](#)
- OCT 2024 [Intercity Number Theory Seminar](#)
- SEP 2024 [Utrecht Algebraic Geometry Seminar](#)
- APR 2024 [Front Range Number Theory Day](#)
- DEC 2023 [CMS Session: Number theory by early career researchers](#)
- AUG 2023 [AMMCS Session: Computational Number Theory](#)
- FEB 2023 [Fields Number Theory Seminar](#)
- DEC 2022 [CMS Session: Diophantine Arithmetic Geometry and Number Theory](#)
- DEC 2022 [Washington University in St. Louis AAG Seminar](#)
- APR 2022 [AMS Session: Explicit Methods in Modularity](#)
- MAR 2022 [Montréal Online Biweekly Inter-University Seminar on Analytic Number Theory \(MOBIUS ANT\)](#)
- NOV 2021 [Ottawa-Carleton Number Theory Seminar](#)
- SEP 2021 [Québec-Vermont Number Theory Seminar](#)
- MAR 2021 [University of Virginia Number Theory Seminar](#)
- FEB 2021 [Québec-Vermont Number Theory Seminar](#)

### CONTRIBUTED

- JUN 2024 [Canadian Number Theory Association](#)
- OCT 2023 [Maine-Québec Number Theory Conference](#)
- APR 2023 [Postdocs at CRM Seminar](#)
- OCT 2022 [Québec-Maine Number Theory Conference](#)
- JUL 2022 [Park City Mathematics Institute](#)
- OCT 2021 [Maine-Québec Number Theory Conference](#)
- JUL 2020 [Fourteenth Algebraic Number Theory Symposium](#)

## TEACHING POSITIONS

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- JAN 2025 Instructor at LEIDEN UNIVERSITY
- PRESENT Topics in Algebraic Number Theory (4373TOANT)
- JAN 2022 Instructor at MCGILL UNIVERSITY
- APR 2023 Number Theory / Honours Number Theory (MATH 346/377), Winter 2023
- Discrete Structures (MATH 240), Winter 2022

- JAN 2017 Teaching Assistant / Course Assistant at STANFORD UNIVERSITY  
 – MAR 2021 Linear Algebra and Multivariable Calculus (MATH 51), Fall 2018, Fall 2020  
 Differential Equations (MATH 53), Spring 2017  
 Modern Mathematics: Discrete Methods (MATH 62DM), Winter 2018, Winter 2020  
 Applied Matrix Theory (MATH 104), Spring 2020  
 Linear Algebra and Matrix Theory (MATH 113), Winter 2021  
 Groups and Rings (MATH 120), Fall 2017, Spring 2019
- SUMMER Mentor at CANADA/USA MATHCAMP  
 2018, 19 Developed curriculum for and taught 25 hours of course material each summer.
- SEP 2012 Teaching Assistant at UNIVERSITY OF TORONTO  
 – AUG 2016 Calculus (MAT135), Fall 2012  
 Calculus! (MAT137), 2013-14  
 Engineering Calculus (MAT187), Winter 2013  
 Groups, Rings, and Fields (MAT347), 2014-15, 2015-16.

## OUTREACH, MENTORSHIP, AND SERVICE

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- NOV 2024 Institute Council (Instituutsraad) Member  
 – PRESENT Mathematics Institute, Leiden University
- 2024 Mathematics Foundation of America (MFOA) Planning Committee
- JUL 2024 Program Committee: Algorithmic Number Theory Symposium
- JAN 2024 Organizer: JMM Special Session on Explicit Computations with Stacks
- SEP 2023 Research Supervisor at MCGILL UNIVERSITY  
 – APR 2024 Supervising two undergraduate students studying elliptic curves, and one studying quaternion algebras (MATH 470)
- SUMMER Academic Coordinator at CANADA/USA MATHCAMP  
 2021 A 5-week long summer program for mathematically advanced high school students. Designed the academic schedule for the program, invited guest speakers, and coordinated teacher training and development.
- MAR – MAY Teaching Assistant at ARIZONA WINTER SEMESTER  
 2021 Developed problem sets and held office hours for a 6-week course on  $p$ -adic numbers and  $p$ -adic modular forms.
- MAR 2018 Teaching Assistant at GEOMETRY OF REDISTRICTING (San Francisco)  
 2-day conference hosted by the Metric Geometry and Gerrymandering Group. Facilitated group activities designed to train high school math teachers and college professors in the mathematics of gerrymandering, voting, and apportionment.
- APR 2017 Directed Reading Program Mentor at STANFORD UNIVERSITY  
 – JUN 2021 Worked with eight undergraduate students on an individual basis; one meeting per week for 10 weeks each
- MAR 2014, Lecturer at MARCH BREAK MATH ACADEMY, Toronto, Canada  
 MAR 2015 5 days, 7 hours per day. Hosted by University of Toronto Schools.
- VARIOUS Guest Speaker  
 Gunn High School Math Circle, Palo Alto, Feb 2020  
 The Wilberforce School, Princeton, Mar 2019  
 University of Toronto Mississauga Math Circle, Apr 2015, Nov 2015, Feb 2016  
 Pre-Concert Lecture for Aradia Ensemble, Toronto, Oct 2014

## GRANTS AND AWARDS

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2021-23 CRM-ISM Postdoctoral Fellowship  
JUN 2021 Centennial Teaching Assistant Award, Stanford University  
JUL 2020 Selfridge Prize, Algorithmic Number Theory Symposium

## COMPUTER SKILLS

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WORKING Sage, Mathematica, Magma, Python  
BASIC HTML, CSS, PHP, Javascript, PARI/GP

My Github repository (<https://github.com/jonathanrlove>) contains a sample of my computational work, including the following projects:

- Computing supersingular isogeny graphs and identifying curves that have non-integer endomorphisms of small degree (supporting the paper “Supersingular Curves With Small Non-integer Endomorphisms”)
- Producing rational equivalences on certain products of elliptic curves (supporting the paper “Torsion phenomena for zero-cycles on a product of curves over a number field”)
- Computing cusp forms over function fields, using an algorithm that tests for isomorphisms between rank 2 vector bundles (supporting my PhD thesis)