Curriculum Vitae

Contact

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Education

Harvard University: Ph.D. and A.M. in Mathematics 2007–2012
Thesis: *Anabelian intersection theory.* Advisor: Prof. Florian Pop, University of Pennsylvania.
Princeton University: A.B. *magna cum laude* in Mathematics, Certificate in Linguistics . . . 2002–2007
PROMYS, Boston University: Student . . . . . Summers 2000, 2001
Program in Mathematics for Young Scientists: a selective summer program in advanced mathematics for high school students.

Full-time Appointments

University of Chicago: NSF Postdoctoral Fellow/L.E. Dickson Instructor of Mathematics . . 2014–2017
University of Pennsylvania: Hans Rademacher Instructor of Mathematics 2012–2014

Visiting Positions

University of Chicago: Department Visitor . . . . . May 2014
Università degli Studi di Padova: Visitor . . . . . June 2013
National Taipei University of Technology: Honorary Professor 2012-2013

Awards, Honors, and Grants

University of Chicago FACCTS French Collaboration Grant 2015–2017
For collaboration with French mathematicians. Amount: $12,000 (used $3,000).
National Science Foundation Postdoctoral Fellowship, Award No. DMS–1400683 2014–2017
Title: New Techniques in Anabelian Geometry and Applications to Algebraic Cycles and Rigidity in Complex Algebraic Geometry.
Mentor: Prof. Madhav Nori, University of Chicago. Amount: $150,000.
Simons Foundation Travel Grant 2013–2014
Amount: $4,000.
National Science Foundation Graduate Research Fellowship 2008–2012
Provided stipend and teaching support for three years of graduate school research.
Department of Defense National Defense Science and Engineering Graduate Fellowship . . . 2008–2011
Provided stipend and teaching support for three years of graduate school research.
Josephine de Karman Trust Fellowship 2006–2007
Endowed national prize established by aeronautics pioneer Theodore von Kármán.
Princeton University Department of Mathematics Andrew H. Brown Prize 2006
Endowed prize for the best Junior undergraduate mathematics concentrator at Princeton University.

Languages

Spoken Languages (in order of fluency): English (native); Romanian (fluent); Bosnian/Croatian/Serbian, French, Spanish (conversational); Hungarian (reading/writing), Russian (reading).
Computer languages: (LA)TEX, Python (Fluent); Java, C, C++, Ruby, Javascript, HTML (Conversant).

About Me

I exploit the unity of mathematics to obtain concrete results.
I am keenly interested in combining the full power of modern technology, machine learning, and mathematical modeling to understand our world, for fun and profit.
In pure mathematics, I am interested in the structure of absolute Galois groups, spaces whose geometry is determined by their π_1's, and algebraic and arithmetic geometry of all sorts, with an eye towards making rigidity theorems explicit and applicable to answer foundational questions in algebraic, arithmetic, and differential geometry.
I learn deeply and quickly, and I consider effective communication an important part of all I do.
My website on `github` hosts my publicly available projects and updated vitæ and résumé, and enjoys frequent updates.
Please feel free to contact me with questions, commissions, job offers, and requests.

References

Prof. Florian Pop, University of Pennsylvania.
Prof. Madhav Nori, University of Chicago.
Prof. Benson Farb, University of Chicago. Also for teaching.
Prof. Jakob Stix, University of Heidelberg.
Prof. Pierre Lochak, Université de Paris VI.
Prof. Pierre Dèbes, Université de Lille.
Prof. Andrew Obus, University of Virginia.
Prof. Henry Towsner, University of Pennsylvania.
Prof. Glenn Stevens, Boston University.

Papers in Pure Mathematics

1. *Anabelian Intersection Theory.* PhD Thesis, Harvard University.
2. *An Anabelian Theorem for Function Fields over* $\overline{\mathbf{Q}}$. Submitted to the *Israel Journal of Mathematics*. In revision. Available on the ArXiv at `http://arxiv.org/abs/1211.4608`
3. *Families of Disjoint Divisors on Varieties*, with Fedor Bogomolov and Alena Pirutka. Reference: European Journal of Mathematics, 2016, DOI 10.1007/s40879–016–0109–1.

Details on work in progress available on request.

Invited Talks in Pure Mathematics

University of Western Ontario, Algebra Seminar ..... September 2017
Wayne State University, Department Colloquium ..... April 2017
Columbia University, Algebraic Geometry Seminar ..... April 2016
University of Virginia, Algebraic Geometry Seminar ..... February 2016
University of Virginia, Undergraduate Math Club ..... February 2016
AMS Sectional Meeting at Rutgers University ..... November 2015
Special session on "Advances in Valuation Theory"
New York University, Algebraic Geometry Seminar ..... November 2015
Purdue University, Algebraic Geometry Seminar ..... September 2015
Mathematisches Forschungsinstitut Oberwolfach ..... October 2014
Workshop on "Valuation Theory and its Applications"
Université de Lille, Number theory days ..... June 2014
University of California, Berkeley, Number Theory Seminar ..... March 2014
University of Arizona, Number Theory Seminar ..... March 2014
The Ohio State University, Algebraic Geometry Seminar ..... March 2014
Vietnam Institute for Advanced Study in Mathematics ..... July 2013
Mathematisches Forschungsinstitut Oberwolfach ..... June 2013
Workshop on "The Arithmetic of Fields"
Università degli Studi di Padova, Research Talk ..... June 2013
Stony Brook University, Algebraic Geometry Seminar ..... May 2013
İMBM, Boğaziçi University, week-long lecture series ..... December 2012
University of Chicago, Geometry/Topology Seminar ..... November 2012
Tel Aviv University, Number Theory Seminar ..... June 2012
University of Pennsylvania, Number Theory Seminar ..... April 2012
Montréal Number Theory Seminar ..... March 2012
Biweekly seminar for McGill University, Concordia University and Université de Montréal
Boston University, Number Theory Seminar ..... December 2011
Harvard University, Number Theory Seminar ..... November 2011

Academic Service

Drexel University: Served on candidacy committee for Timothy Hayes at ..... September 2013
University of Chicago: Organizer, Algebraic Geometry Seminar 2014–present

Teaching Activities

University of Chicago: Linear Algebra, Math 20250 . . . . . Fall 2016

University of Chicago: Abstract Algebra, Math 255 . . . . . Winter 2015

These two courses were essentially identical: abstract linear algebra and introduction to proofs with algebraic structures for math majors. I taught two sections of each, held office hours, and managed TA's.

University of Chicago: Young Scholars Program . . . . . Winter 2015

Taught an introduction to elementary number theory as weekend enrichment for interested Chicago high school students under the aegis of the Young Scholar's Program, and managed the undergraduates who assisted with the program.

University of Pennsylvania: Proving Things: Algebra, Math 203 . . . . . Spring 2014

Taught one section of introduction to proof with formal logic for students who think they might want to major in mathematics. Managed one graduate student TA.

University of Pennsylvania: "Active Learning" Calculus, Math 104 (Calculus I) . . . . . Fall 2014

Designed this course Prof. Annalisa Crannell of Franklin & Marshall College, Prof. Robin Pemantle of the University of Pennsylvania, and Prof. Camelia Pop, now at the University of Minnesota. I taught one section and served as course head for two sections of the flipped classroom, worksheet-based, second-semester undergraduate calculus course we developed. I managed two graduate student TA's.

University of Pennsylvania: Undergraduate Algebra, Math 370 . . . . . Fall 2014

Undergraduate algebra course for math majors.

Ho Chi Minh City University of Science: Quadratic Reciprocity . . . . . Summer 2013

Taught an introductory course on a cyclotomic proof of quadratic reciprocity to advanced undergraduates.

University of Pennsylvania: Linear Algebra . . . . . Spring 2013

Taught two sections of a linear algebra course for engineers and Wharton students. Managed two TA's.

Università degli Studi di Padova: Anabelian Geometry . . . . . Summer 2013

Taught a month-long course on anabelian geometry and abstract Galois theory to graduate students in Padua.

AUIA Summer Program, Taipei: Linear Algebra and Multivariable Calculus . . . . . July 2012

Taught two short courses, managed three undergraduate TA's.

Harvard University: Math M 2008–2010

Coordinated and documented Inquiry-Based Learning (IBL) components of Math M, the hybrid pre-calculus/calculus course at Harvard. I worked in small groups with students in the class, and trained undergraduates to guide student "workshops" using IBL methods. I also participated heavily in the development of the curriculum related to this component of the course. Managed 5–10 undergraduate TA's each semester.

PROMYS: Research supervisor . . . . . Summers 2008, 2009

Supervised high school students' research projects at PROMYS.

Harvard University: Summer Tutorial on the Model Theory of Fields . . . . . Summer 2008

Designed and taught a summer course for undergraduate math majors.

Harvard University: Math Question Center . . . . . Spring 2008

Supervised drop-in help center, encouraging students to work in groups and teach each other material.

PROMYS: Counselor . . . . . Summers 2003-2007

Each summer, was responsible for grading the problem sets of four high school students and organizing and presenting in mathematics seminars for fellow counselors.