

# CURRICULUM VITAE

DANIEL SMOLKIN  
OCTOBER 8, 2018

## CONTACT AND PERSONAL INFORMATION

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## EDUCATION

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- **Ph.D.** in Mathematics. The **University of Utah**, Salt Lake City, UT. GPA: 3.964  
I plan to graduate May 2019
- **B.S.**, with distinction. The **University of Michigan**, Ann Arbor, MI. GPA: 3.692  
Awarded May 2013  
**Majors:** Mathematics (with high honors), Physics. **Minor:** Computer Science

## PAPERS AND PREPRINTS

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- “The TestIdeals package for Macaulay2.” Joint with A. Boix, D. J. Hernández, Z. Kadyrsizova, M. Katzman, S. Malec, M. Robinson, K. Schwede, P. Teixeira, and E. E. Witt. URL: <https://arxiv.org/abs/1810.02770>.
- “Ordinary and Symbolic Powers of Ideals in Hibi Rings.” Joint with J. Page and K. Tucker. URL: <https://arxiv.org/abs/1810.00149>.
- “The Uniform Symbolic Topology Property for Diagonally  $F$ -regular Algebras.” *Submitted*. Joint with J. Carvajal-Rojas. URL: <https://arxiv.org/abs/1807.03928>.
- “A New Subadditivity Formula for Test Ideals.” *Submitted*. URL: <https://arxiv.org/abs/1805.08739>.
- “The Maximum Likelihood Degree of Toric Varieties.” To appear in the Journal of Symbolic Computation. Joint with C. Amendola, N. Bliss, I. Burke, C. Gibbons, M. Helmer, S. Hosten, E. Nash, and J. Rodriguez. URL: <https://doi.org/10.1016/j.jsc.2018.04.016>
- “RationalMaps, a Package for Macaulay2.” *Submitted*. Joint with C. J. Bott, S. H. Hassanzadeh, and K. Schwede. URL: <http://www.math.utah.edu/~smolkin/research/RationalMapsPaper.pdf>

## TEACHING EXPERIENCE

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At the University of Utah:

- Math 1220, Calculus II (Summer 2018)
- Math 4400, Introduction to Number Theory (Summer 2017)
- Math 1070, Introduction to Statistical Inference (Fall 2016)

- Math 1310, Engineering Calculus I (Fall 2015)
- Math 1060, Trigonometry (Fall 2014, Spring 2015, Spring 2018)

## MENTORING AND SERVICE

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- Supervised an REU project, “Diagonally  $F$ -Regular Toric Rings,” by Dylan Johnson. Summer 2018.
- Judged undergraduate mathematics research posters at the Joint Math Meetings. January 12, 2018.
- Volunteered with the Utah mathematics department’s “Calculus Carnival.” November 8, 2017.
- Presented a poster about mathematics research at University of Utah’s SACNAS event. October 21, 2017.
- Gave a short, interactive math lecture to prospective undergraduates at the University of Utah College of Science’s summer orientation. Summer, 2017.
- Spoke at the “Math Medley” event at the Leonardo Museum in SLC, UT. March 11, 2017.
- Helped organize the mathematics department’s graduate student recruitment weekend. Spring, 2017.
- Co-chair of the Graduate Student Advisory Committee (GSAC) for the mathematics department. 2016–2017
- Organized the graduate student commutative algebra seminar (BIKES). 2015–2017
- Gave numerous lectures for the graduate student colloquium, student commutative algebra seminar, and student algebraic geometry seminar at Utah

## INVITED TALKS

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- University of Wisconsin algebra and algebraic geometry seminar. Madison, WI. January 25, 2019.
- “Diagonal Cartier Algebras and Symbolic Powers,” University of Illinois at Chicago commutative algebra seminar. Chicago, IL. October 22, 2018.
- “Studying Symbolic Powers with Test Ideals,” AMS Special Session on Advances in Commutative Algebra. Ann Arbor, MI. October 20, 2018.
- “Symbolic Powers via Test Ideals,” Route 81 conference. Syracuse, NY. September 29, 2018.
- “Symbolic powers via Test Ideals,” University of Kentucky Algebra Seminar. Lexington, KY. September 20, 2018.
- “Subadditivity and Symbolic powers,” University of Michigan Commutative algebra seminar. February 8, 2018
- “Subadditivity and Toric Varieties,” AMS Special Session on Commutative Algebra in All Characteristics. San Diego, CA. January 10, 2018
- “Cartier algebras, Subbadditivity, and Symbolic Powers,” University of Utah Commutative Algebra Seminar. December 8, 2017
- “Subadditivity formulas for test ideals,” AMS Special Session on Commutative Algebra. Pullman, WA. April 23, 2017

## WORK EXPERIENCE

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**Data Scientist Intern at Digital Roots in Northville, MI** (June 2013—August 2013)

- Studied natural language processing techniques

- Implemented text classification algorithms in R
- Designed metrics for ranking the success of text classification algorithms specifically tailored for our use cases

**Laboratory Assistant** at the **University of Michigan Department of Physics** in **Ann Arbor, MI**  
(December 2010—January 2013)

- Designed and fabricated a system to automatically manipulate optical elements and collect data from optical sensors
- Programmed above system using LabVIEW and the Arduino programming language
- Implemented the Rigorous Coupled Wave Analysis Algorithm (RCWAA) to simulate EM wave diffraction from photonic crystal structures, using Python

## SKILLS

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### Software and Computing

- Programming: C++, Python, Maculay2, R, Bash
- Web design: HTML, CSS, Hugo, Django
- Others:  $\text{\LaTeX}$  markup language, Vim text editor, Git, Linux

### Languages

- Native speaker of Russian. Can read technical mathematics
- Proficient in spoken Japanese.
- Basic Hebrew

## GRANTS AND AWARDS

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- **AMS Graduate Student Travel Grant** January, 2018.
- **RTG student trainee** University of Utah Department of Mathematics, Fall 2013–Summer 2014, Summer 2015, Spring 2017, Fall 2017, Fall 2018.
- **Evelyn O. Bychinsky Award** University of Michigan Department of Mathematics, 2011
- **M.S. Keeler Department of Mathematics Merit Scholarship** University of Michigan Department of Mathematics, 2010