

## Education

- Aug. 2014– **B.S. Computer Engineering and B.S. Mathematics**,  
May 2018 *University of Illinois at Urbana-Champaign*.  
Aug. 2018– **PhD Mathematics**, *Texas A&M University*.  
Present

## Publications

- *The Surprising Accuracy of Benford's Law in Mathematics*. Zhaodong Cai, Matthew Faust, A.J. Hildebrand, Junxian Li, Yuan Zhang, *The American Mathematical Monthly*, (2020), DOI: 10.1080/00029890.2020.1690387.
  - *Subject of a 2021 Paul R. Halmos - Lester R. Ford Award*
- *Leading Digits of Mersenne Numbers*, Zhaodong Cai, Matthew Faust, A.J. Hildebrand, Junxian Li, Yuan Zhang, *Experimental Mathematics*, (2019), DOI: 10.1080/10586458.2018.1D551162.

## Presentations

- *Critical Points of Discrete Periodic Operators (CPoDPO)*, Matthew Faust (25 minute talk, 25 m.t) Effective Methods in Algebraic Geometry (MEGA), Krakow, Poland, June 23, 2022
- *CPoDPO*, Matthew Faust (25 m.t) Great Lakes Mathematical Physics (GLaMP), Michigan State University, June 11, 2022
- *CPoDPO*, Matthew Faust (25 m.t) JMM AMS Special Session on Structured Polynomial Systems In Mathematics and Its Applications, Zoom, April 6, 2022
- *CPoDPO*, Matthew Faust (25 m.t) AMS Spring Sectional, Zoom, March 26, 2022
- *CPoDPO*, Matthew Faust (25 m.t) Conference on spectral theory of ergodic, Zoom, March 12, 2022
- *CPoDPO*, Matthew Faust (50 m.t) Texas A&M MPHA seminar, March 11, 2022
- *CPoDPO*, Matthew Faust (25 m.t) SIAM TX-LA, Nov. 7, 2021
- *CPoDPO*, Matthew Faust (50 m.t) Texas A&M MPHA seminar, April 30, 2021
- *Leading Digit Distribution, Continued Fractions, and Probabilistic Diophantine Approximation*, Matthew Faust, Yuan Zhang (Poster) UI Undergraduate Research Symposium, April 27, 2017
- *Leading Digit Distribution, Continued Fractions, and Probabilistic Diophantine Approximation*, Zhaodong Cai, Matthew Faust, Yuan Zhang, (Poster) Joint Mathematics Meetings, Atlanta, GA, January 6, 2017.
- *A local Benford Law for a class of arithmetic sequences*, Zhaodong Cai, Matthew Faust, (20 m.t) Young Mathematicians Conference, Ohio State University, Columbus, OH, August 19-21, 2016.
- *A local Benford Law for a class of arithmetic sequences*, Zhaodong Cai, Matthew Faust, (15 m.t) MAA MathFest, Columbus, OH, August 4 - 7, 2016
- *Randomness and regularities in the leading digits of number-theoretic sequences*, Zhaodong Cai, Matthew Faust, Shunping Xie (20 m.t) Rose-Hulman Undergraduate Mathematics Conference, Terre Haute, IN, April 22-23, 2016.
- *Local and global randomness in the leading digits of arithmetic sequences*, Zhaodong Cai, Matthew Faust, Shunping Xie (Poster) UI Undergraduate Research Symposium, April 21, 2016.

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## Mentoring Experience

- Jun. 2022 – **Sottile TAMU REU 2022**, *Texas A&M University*, College Station, TX.  
Present
  - Ongoing REU project with a previous DRP student.
  - In the spring, I led the student through *Ideals, Varieties, and Algorithms* by Cox, Little, O'Shea.
  - During Summer, we will continue the project worked on the previous year.
- Spring 2022 **Directed reading program**, *Texas A&M University*, College Station, TX.
  - Leading a student reading *Thinking About Mathematics* by Shapiro.
- Fall 2021 **Directed reading program**, *Texas A&M University*, College Station, TX.
  - Led a student reading *Topological Crystallography* by Sunada.
  - This reading evolved into an ongoing REU project with the student.
- May 2021 – **Sottile TAMU REU 2021**, *Texas A&M University*, College Station, TX.
- August 2021
  - Worked with two students in an REU focused on the application of methods from algebraic geometry to problems from mathematical physics.
- 2020 Spring **Directed reading program**, *Texas A&M University*, College Station, TX.
  - Led a student reading *Introduction to Quantum Graphs* by Berkolaiko and Kuchment.

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## Teaching

- 2022 Summer **Grader for Math 308**, *Texas A&M University*, College Station, TX.
- 2022 Spring **Grader for Math 416**, *Texas A&M University*, College Station, TX.
- 2021 Fall **TA for Math 147 (Biology Calc)**, *Texas A&M University*, College Station, TX.
- 2021 Summer **Instructor for Math 142 (Business Calc)**, *Texas A&M University*, College Station, TX.
  - Five week course, virtually lectured daily through zoom.
- 2021 Spring **Grader for Math 415**, *Texas A&M University*, College Station, TX.
- 2020 Fall **Grader for Math 300**, *Texas A&M University*, College Station, TX.
- 2020 Summer **TA for Math 151**, *Texas A&M University*, College Station, TX.
- 2020 Spring **TA for Math 151**, *Texas A&M University*, College Station, TX.
- 2019 Fall **TA for Math 152**, *Texas A&M University*, College Station, TX.
- 2019 Spring **Grader for Math 220**, *Texas A&M University*, College Station, TX.
- 2018 Fall **Grader for Math 220**, *Texas A&M University*, College Station, TX.
- Fall 2017 **Grader for Math 231**, *University of Illinois*, Champaign, IL.
- 2016 **Course Assistant for CS 374**, *University of Illinois*, Champaign, IL.

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## Honors

- 2021 **2021 Paul R. Halmos - Lester R. Ford Award.**
- 2018 **Math Algebraic-Combinatorics Scholarship ICLUE.**
- 2014–2018 **Edmund J. James Scholar.**
- 2014 – 2015 **ECE Grainger Freshman Scholarship.**
- 2014 – 2015 **IL Engineering Achievement Scholarship.**