

YIFAN ZHANG

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EDUCATION

University of Illinois at Urbana-Champaign
Bachelor of Science in Mathematics

August 2018 - Present
Current GPA: 3.97

HONORS

Member of Pi Mu Epsilon Math Honorary Society 2019
Edmund James Scholar 2018-19
Dean's List 2018-19

RELEVANT COURSEWORK

MATH 553 Partial Differential Equations	ECE 534 Random Processes
MATH 428 Galois Theory A	MATH 595 Algebraic and Differential Topo in Data Analysis
MATH 424 Honors Real Analysis A	GEOG 468 Biological Modeling A+
MATH 441 Intro to ODE A	MATH 448 Complex Variables A
CS 125 Intro to Computer Science A	MATH 416 Abstract Linear Algebra A+
IB 150 Organismal & Evolutionary Bio A	STAT 400 Statistics & Probability I A+

RESEARCH EXPERIENCE

Gauss Sums <i>Illinois Geometry Lab Project led by Prof. Adolf Hildebrand</i>	Jan 2020 - Present Urbana, IL
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- Visualized exponential and cubic sum Gauss walks and generated interesting gifs with Mathematica
- Discovered patterns of spirals in exponential sum Gauss walks
- Discovered patterns in ending points of cubic sum Gauss walks
- Invented methods to simplify calculations of cubic Gauss sums
- Wolfram demonstration

Abiotic Ecosystem Stability <i>Research Project Led by Prof. James O'Dwyer</i>	Dec 2019 - Present Urbana, IL
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- Evaluating stability of consumer-producer-resource systems
- Investigating loss of energy in ecosystems
- Developing methods to evaluate behaviors of species

Combinatorial Game Theory <i>Illinois Geometry Lab Project Led by Dr. Elliot Kaplan</i>	Jun - Aug 2019 Urbana, IL
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- Utilized the surreal number system to simplify three-player games and compare the advantages possessed by individuals
- Proved that there exists no "zero" element except zero itself in a general game class
- Evaluated games to disprove three conjectures proposed by K.Greene
- Synthesized results into a cohesive report

COURSE PROJECT

Model of Calcium Homeostasis in Human Body

December 2019

GEOG 468(Biological Modeling) course project led by Prof. Bruce Hannon)

Urbana,IL

- Created a dynamic computational model of the flow of calcium upon dietary intake to the gastrointestinal tract, kidney, and bone
- Calculated optimal time for patients that have chronic kidney diseases to take dialysis
- Presented slides "Model of Calcium Homeostasis"

CONTRIBUTED TALKS

Undergraduate Mathematics Symposium at UIUC

August 2019

Presenter

Urbana,IL

- Co-presented a 15 minutes talk "Three-Player Partisan Games"

Undergraduate Research Symposium at UIUC

April 2020

Lead Presenter

Urbana,IL

- Co-presented a poster "Randomness and Patterns in Gauss Sums"
- Co-created a video to explain the poster
- Answered questions in the virtual forum

Undergraduate Mathematics Symposium at UIUC

May 2020

Presenter

Urbana,IL

- Co-presented slides "Randomness and Patterns in Gauss Sums"

WORK EXPERIENCE

Exam Proctor and Grader

Urbana,IL

University of Illinois at Urbana-Champaign

Fall 2019 - present

- Proctoring and grading proficiency exams for UIUC Math department

PROGRAMMING SKILLS

Mathematica, Python, Stella, Java, R