Joseph Li

jli0108@terpmail.umd.edu
https://terpconnect.umd.edu/~jli0108/

Education

August 2018 - Present
University of Maryland, College Park - *B.S. in Mathematics, B.S. in Computer Science, Physics Minor*

- GPA: 3.953
- Expected graduation date: Fall 2021
- Dean's Scholarship, Dean's List, Honors College - University Honors

Coursework

- Applied Stochastic Processes
- Advanced Calculus I/II
- Introduction to Abstract Algebra
- Introduction to Numerical Analysis I
- Combinatorics and Graph Theory
- Introduction to Signal Processing
- Introduction to Statistical Thermodynamics
- Introduction to Computer Systems
- Organization of Programming Languages
- Design and Analysis of Computer Algorithms

Experience

September 2020 - December 2020
University of Maryland- Grader for MATH402 Algebraic Structures

February 2020 - May 2020
University of Maryland- Grader for STAT410 Introduction to Probability Theory

September 2019 - December 2019
University of Maryland- Grader for MATH310 Introduction to Mathematical Proof

February 2019 - December 2019
University of Maryland- Undergraduate Research Assistant
FIRE: The First-Year Innovation & Research Experience
Engineering Biosensors Lab — Research Advisor: Dr. Catherine Spirito

- Performed selection of RNA aptamers against NasR protein, involved in antitermination of transcription under presence of nitrate in bacterial cells
- Constructed a chemostat to test microcompartment formation in pdu *E. coli* in continuous culture
- Assisted in the development of an aptamer-based biosensor for detection of *E. coli* in water samples using gold nanoparticles
- Developed professional lab procedures and reports for operation of chemostat

February 2019 - May 2019
University of Maryland- Grader for STAT410 Introduction to Probability Theory

Projects

- Developed a simulation that approximates the distribution for the number of matches of 3 or more orbs in a line in any $m \times n$ board, based on the mobile game *Puzzle and Dragons*. Designed a dynamic programming algorithm to count matches in $O(mn)$ time. Computed combinatorially the exact distribution for a 2×2 board with matches of 2 orbs in a line and verified correctness using simulation.
  https://jli0108.github.io/pazudora-simulation/

Skills

- LaTeX, Java, MATLAB, R, C, HTML, MIPS Assembly, JavaScript, Ruby, OCaml, Rust