Justin Kim

justin314kim@gmail.com Justin Kim http://rlajustin.github.io/

Education

2021 – 2025 **B.S. Mathematics and Computer Science, Rutgers University**.
GPA: 4.0/4.0.

Experience

Research Experience

2024 – 2024 **Research Experience for Undergraduates (REU)**, DIMACS, Rutgers University.
Research in building more efficient and secure digital signature schemes, supported by NSF grants CCF-1836666 and CNS-2150186.

2022 – 2024 **Research,** Rutgers University.
Worked on the RLIBM project, supported by Aresty Research Center and NSF Grant No. 2110861. Utilized computing resources at Rutgers to compute math functions correct for all 32-bit inputs.

2020 – 2021 **Research,** Duke University (Virtual).
Worked on adapting blockchain consensus protocols for networks with unreliable responsiveness. Gained experience with the conference submission process.

Course Projects

Math 492 Writeup of various results on the "moving sofa problem", an open problem in mathematics that asks the maximum area of a shape that can be maneuvered around an L-shaped hallway. Gave a presentation of the proof of the currently best lower bound, as well as a model of the sofa that I fabricated myself.

CS 514 Worked with two students on improving lower and upper bounds of the edge coloring problem in the graph streaming model, for large graphs that cannot be easily stored and queried arbitrarily. We managed a slight improvement on the best known upper bound, and proposed a direction to push that improvement further.

CS 672 Learned a little bit about the TLA+ specification language, which is typically used to model and verify distributed system protocols. I attempted to apply this tool to a more theoretical setting, and wrote about the obstacles that I faced.

Teaching

2023 – 2023 **Seminar Instructor,** Rutgers University.
Designed a course in computer science while taking a class in pedagogy during the spring semester. Taught interested first-year students in the fall.

2022 – 2023 **Grader,** Math Department, Rutgers University.
Graded coursework for Math 300 (first proofs course), provided feedback on proof writing skills.

Research Publications

Conference Proceedings

1 **J. Kim**, V. Mehta, K. Nayak, and N. Shrestha, "Brief announcement: Making synchronous bft protocols secure in the presence of mobile sluggish faults," in *Proceedings of the 2021 ACM Symposium on Principles of Distributed Computing*, ser. PODC'21, Virtual Event, Italy: Association for Computing Machinery, 2021, pp. 375–377, ISBN: 9781450385480. DOI: 10.1145/3465084.3467954.

Skills

Languages	Native English, intermediate Spanish, elementary Korean.
Programming	Java, C/C++, Python, basic shell scripting. See https://github.com/rlajustin.
Technology	Linux, Slurm Workload Manager.
Misc.	Teaching, Inkscape, Mathematica, LaTeX, TLA+.

Awards

2023, 2024 **Paul Robeson Scholar,** recognized by the CS department at Rutgers University for undergraduate research.

2022 **Putnam Mathematics Competition,** Rank 220.