Priyam Gupta
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Education

BSc, Computer Science, Purdue University, West Lafayette, IN. Aug 2021 - Dec 2024
Minor in Mathematics GPA: 3.91/4.00
Relevant Coursework: Programming Languages, Reasoning about Programs, Algorithms, AI, Operating Systems, Databases, Systems Programming, Probability, Linear Algebra, Real Analysis

Research Experience

Purdue University

Increasing the Expressibility of a Gradual Verifier May 2024 - Present
Advisor: Jenna DiVincenzo, Assistant Professor in Electrical and Computer Engineering

- Designed and currently implementing an extension to the Gradual C0 software verification tool to incorporate static verifier Viper's unfolding expressions, thereby enhancing its capability to verify programs with inductive data structures.
- Authored comprehensive technical documentation detailing background, methodology, and results, ensuring clarity for future contributors.
- Presented a research poster at the Summer Research Symposium, Purdue University, communicating complex ideas to an interdisciplinary audience.
- Designing a further extension to support pure functions, aiming to bring Gradual C0's expressiveness close to current static verifiers, thus promoting broader adoption of verification technology.

Procedural Generation with Quantum Optimization Aug 2023 - Aug 2024
Quantum Game Club at Purdue University

- Developed an innovative wave function collapse algorithm tailored for quantum computing devices, resulting in a significant reduction in runtime.
- Collaborated with five members of the Quantum Game Club to conceptualize and implement a practical quantum algorithm utilizing Python and the Qiskit circuit library.
- Amplified the efficiency and scalability of diverse procedural generation applications, including simulations and computer graphics.

Developing an Undergraduate Quantum Workforce Aug 2023 - May 2024
Advisor: Charles Robert Kenley, Professor of Practice in Industrial Engineering

- Conducted a comprehensive literature review to assess the current state of quantum education, identifying key areas for improvement and investment.
- Analyzed CATME survey data obtained from Quantum Game Club and Quantum VIP (Vertically Integrated Project) Team, using statistical tests to investigate key differences in team performance.
- Engaged in discussions on quantum concepts with interdisciplinary researchers at community meetings, fostering cross-disciplinary understanding and collaboration.
- Presented a research talk at the Fall Undergraduate Research Expo 2023, emphasizing the significance of teaching quantum computing across various educational levels.

Publications

Li, D., **Gupta, P.**, Yang, Y. L., Broyles, E. C., Goel, L., & Kenley, C. R. (in press). Developing an Undergraduate Quantum Workforce. *QCE24 Conference Proceedings*.

Zhang, Z., Britten, L., Cheng, S., Xiao, K., **Gupta, P.**, & Ruda, S. (2024). *Towards Wave Function Collapse Using Optimization with Quantum Algorithms*. Manuscript submitted for publication.

Work Experience

Information Technology Intern, Avient Corporation, Avon Lake, OH. May 2023 - Aug 2023

- Collaborated with senior network engineers to write Python scripts to automatically configure over 700 devices to seamlessly integrate into SolarWinds.
- Utilized PRTG to implement network monitoring for 125 sites worldwide resulting in a live strategic picture of network outages across company.
- Piloted Microsoft Bookings to be used by over 8,000 associates globally for more efficient scheduling.
- Improved network security by disabling Teletype Network Protocol (Telnet) on over 200 devices.

Undergraduate Research Assistant, Purdue Data Mine, West Lafayette, IN. Aug 2022 - Dec 2022

- Partnered with pharmaceutical company Merck to create a software application corresponding with data engineer and software developer teams under Agile framework.
- Analyzed biometric data using Python to identify relationships between multiple health variables and procedural mistakes in a lab setting providing relevant feedback to the scientific community.
- Presented findings and recommendations to the Merck board for implementation in future studies.

Teaching

Teaching Assistant - CS 456 Programming Languages, Purdue University Aug 2024 - Present
Honors Mentor - HONR 19901 Evolution of Ideas, Purdue University Aug 2022 - December 2022

Honors and Awards

EURO - Purdue University, *Summer Undergraduate Research Fellowship* 2024
John Martinson Honors College, *Undergraduate Research Fellowship* 2023 - 2024
Purdue University, *Dean's List and Semester Honors* 2021 - 2024
John Martinson Honors College, *Undergraduate Research Grant* 2023

Spoken Languages

Fluent in **English** and **Hindi**

Technical Skills

Programming Languages: Python, C/C++, Java, OCaml, Haskell, Rust, Swift, LaTeX
Hardware: Network Configuration, practical experience with Arduino sensors and microprocessors

International Experience

Student Writer, DIS - Study Abroad in Scandinavia, Copenhagen, Denmark May 2022 - Aug 2022

- Composed weekly online blogs articulating cultural experiences in Denmark and Sweden.
- Collaborated with a multi-functional team consisting of digital media marketers and journalists to provide engaging marketing materials for the student population.

Leadership and Service

Student Ambassador, Purdue Study Abroad — Feb 2023 - Present
Team Leader International, Boiler Gold Rush Orientation Program — Mar 2024 - Aug 2024
Team Supervisor, Boiler Gold Rush Orientation Program — Nov 2022 - Oct 2023
Team Leader, Boiler Gold Rush Orientation Program — Mar 2022 - Aug 2022

References

Jenna DiVincenzo, Assistant Professor
Electrical and Computer Engineering at Purdue University
jennad@purdue.edu

Thomas Krawiec, Senior Manager
Analytic Applications at Avient Corporation
216-346-5997, Tom.krawiec@avient.com

Michael Bittinger, Assistant Director
Study Abroad Office at Purdue University
765-494-0646, mbitting@purdue.edu