Paridhi Gupta

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Education

University of Wisconsin - Madison
PhD Student, Expected May 2030
Advisor: Prof. Joshua San Miguel
Research Interests: Novel Computer Architectures
GPA: 4.0/4.0

University of Wisconsin - Madison
Bachelor of Science, Computer Engineering, May 2025
Additional Majors: Data Science, Computer Sciences; Certificate: Entrepreneurship
GPA: 3.97/4.0

Research Interests

I am interested in novel architectures for energy-efficient AI, specifically focusing on stochastic computing and the design of resilient NoC interconnects.

Skills

Verilog, Synopsys, Cadence, gem5, C, Java, Python, JavaScript, TensorFlow, OpenCV, Docker, MySQL, HTML, MATLAB, R-studio, Hspice, Assembly

Research Experience

STACS Lab, College of Engineering, UW-Madison
Researcher, February 2023 - August 2025
Faculty Advisor - Prof. Joshua San Miguel

- Exploring deadlock prevention methods for interconnects of 2.5D IC using gem5
- Designing a specialized Stochastic Processing Unit (SPU) for low-power AI applications and making an open source simulator for the same

UW School of Medicine and Public Health - Radiology, UW- Madison
Researcher, September 2021 - May 2022

- Trained a masking CNN to identify malignant tumors in a medical scan of multiple organs
- Presented the research at the Undergraduate Research Symposium

Industry Experience

Arm, Arizona
CPU Hardware Intern, May 2025 - August 2025

- Brought up liveness for formal verification
- Enabled finer-grained testing by modularizing interfaces for formal verification

Arm, Arizona
CPU Hardware Intern, May 2024 - August 2024

- Leveraged LLMs for CPU Performance Modeling
- Scraped data from Dimensions RM and Gerrit for RAG, automated with a daily Jenkins pipeline, and improved answer accuracy by 37%

Mindtickle Inc., Pune
Software Development Engineer Intern, June 2023 - August 2023

- Created prompts for Follow-up Email Drafts, extracting Action Items and Key Moments from a call transcript, scoring sales calls for CHAMP, MEDDPICC
- Evaluated Azure OpenAI vs. OpenAI for GPT services, reducing service latency by 10%

Teaching Experience

- TA for ECE 352: Digital System Fundamentals in Fall 2026
- Mentored two ECE-SPARK students in Summer 2026
- Mentoring an undergraduate student since December 2025
- In-class Peer Coach for ECE 552: Introduction to Computer Architecture in Spring 2024
- In-class Peer Coach for ECE 252: Introduction to Computer Engineering in Spring 2023
- Undergraduate Student Assistant for ECE 252: Introduction to Computer Engineering in Fall 2022

Publications

- **P. Gupta**, Z. Pan, H. Hsiao, and J. San Miguel, "SCoRe: Stochastic Compressed Representations," in Workshop on Unary Computing (WUC), Mar. 2026.
- R. Selagamsetty, **P. Gupta**, W. Li, J. S. Miguel, and M. Lipasti, "gem5 Support for Pseudo-Random Number Generation," in Proc. gem5 Workshop (ISCA), Raleigh, NC, USA, Jun. 2026.

Presentations

- Presented SCoRe: Stochastic Compressed Representations at the 3rd Workshop on Unary Computing (WUC) in conjunction with ASPLOS'26
- Presented Stochastic Processing Unit work at the WiSys Quick Pitch - UW Madison for which I won first place
- Presented Stochastic Processing Unit work at the WiSys Quick Pitch - Finals
- Presented Stochastic Processing Unit work at the UW Madison Undergraduate Research Symposium
- Presented a poster on Stochastic Processing Unit work at the UW Madison ECE Undergraduate Research Symposium

Awards and Honors

- David & Sarah Epstein Teaching Fellow - September 2026 - December 2026
- ECE Graduate Student Award for Excellence in Service - May 2026
- ECE Distinguished Graduate Fellowship - August 2025 to August 2026
- Hilldale Undergraduate Research Fellowship - September 2024 to May 2025
- UArch Travel Grant and Workshop for ISCA 2024
- Won first place and the Hacker's Choice Award at MadHacks 2023 for LeviTap a touchless navigation application for computers using computer vision and speech-to-text
- Ernest W. Reynolds Scholarship - September 2022 to May 2025
- Dean's Honors List (8/8 semesters)

Academic Projects

- Designed a latency aware cache replacement policy for NUCA architectures and implemented and validated it in gem5
- Designed a lookahead, dynamic, fault tolerant routing algorithm for NoCs and implemented and validated it in gem5
- Designed a lossy compression scheme for caches in approximation tolerant systems and implemented and validated it in gem5

Service Roles

- Electrical and Computer Engineering Graduate Student Association Vice President - June 2026 to May 2027
- IEEE Eta Kappa Nu Theta Chapter Treasurer - September 2025 to Present
- IEEE Eta Kappa Nu Theta Chapter President - September 2024 to August 2025
- IEEE Eta Kappa Nu Theta Chapter Academic Coordinator - September 2023 to August 2024