

RAHUAL RAI

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EDUCATION

Howard University

B.S. in Computer Science and Mathematics
GPA: 4.0/4.0

May 2026 (expected)

RESEARCH EXPERIENCE

Princeton Alliance for Collaborative Research and Innovation [1]

Supervisors: Dr. Janet Curie, Dr. Meirong Liu, Dr. Jiang Li

Aug 2024 - Present

Princeton University

- Developed LLM-based survey and interview system for conducting health research in underserved communities in Washington DC.
- Implemented automated data collection pipeline targeting urban minority asthmatic children living in public housing.
- Coordinated community engagement protocols in interviews to improve response rates and data quality in low-income populations.

Mangrove Monitoring - Engineers for Exploration

Supervisor: Dr. Ryan Kastner

Jan 2024 - Dec 2024

UC San Diego

- Developed computer vision models for satellite super-resolution, achieving state-of-the-art performance in multispectral imagery enhancement.
- Improved landmass classification accuracy and precision by 15% while reducing model size by 75% through architectural optimization and best practices implementation.
- Pioneered novel diffusion model architecture for multispectral satellite super-resolution to enable precise environmental monitoring from space.
- Built web infrastructure and frontend interface for deploying monitoring tools to research and conservation communities.

Energy Supply Chain Cybersecurity

Supervisor: Dr. Jiang Li, Ryan Cryar

May 2023 - Dec 2023

National Renewable Energy Laboratory

- Designed comprehensive security analysis framework integrating Software Bill of Materials (SBOMs), vulnerability databases, and Vulnerability Exploitability eXchange (VEX) technologies.

INDUSTRY EXPERIENCE

Software Engineering Intern - Programming Systems

Dr. Shauvik Roy Choudhary, Dr. Peng Liu

May 2025 - Aug 2025

Uber, NYC

- Developed a prototype automated agent for small-to-medium-scale bug fixes, achieving a 50% cost reduction compared to commercial alternatives such as Claude Code.
- Optimized agent performance to run 30% faster while maintaining the accuracy of bug fix solutions.
- Built an end-to-end system demonstrating significant improvements in both cost efficiency and speed for automated code repair.

HONORS AND GRANTS

Tau Beta Pi Scholarship	2025
Google TechX Scholar	2024
Goldman Sachs Market Madness Scholar	2024
Google Generation Scholarship	2023
DEFCON 31 SEEDAI Sponsorship	2023
HU College of Engineering Dean’s List	2023, 2024, 2025

PUBLICATIONS

[1] **Rai, Rahual**, M. Liu, A. Panthi, *et al.*, *Using large language models to conduct interviews with public housing stakeholders for urban minority asthmatic children*, Submitted to AMIA Symposium, 2025.

[2] **Rai, Rahual**, P. Michaels, N. Tonge, *et al.*, “Analysing loneliness forum posts, the comments they elicit, and the responses to these comments,” *PLOS Mental Health*, vol. 1, no. 6, e0000037, 2024. DOI: 10.1371/journal.pmen.0000037.

[3] **Rai, Rahual** and S. Rijal, *Fact-checked claim retrieval: Combining zero-shot claim extraction and knn-based classification*, Poster submitted to Amazon-HBCU AI/ML Symposium, 2025.

SKILLS/HOBBIES

Programming Languages	Python, C/C++
Machine Learning Tools	Pytorch, Tensorflow, Sklearn, Pandas, Numpy
Hobbies	Hiking and Gardening