

Bharadwaj Vuppala

618W 136 St, New York, NY, 10031
(646)-789-8170 | bv2336@columbia.edu | bharadwaj v

EDUCATION

Columbia University

Master of Science in Computer Science - Machine Learning track

New York, NY

Dec 2025

- Cumulative GPA: 4.165/4.0.

Indian Institute of Technology, Tirupati (IIT T)

Bachelor of Technology in Computer Science and Engineering

Tirupati, India

Jul 2024

- GPA: 9.63/10.0 (2nd in the class 2024). Conducted research in Reinforcement Learning.

PROJECTS

Guidance from Language Assistive Sight System (GLASS)

Sep 2024 - Dec 2024

- Developed an innovative image captioning model designed to assist visually impaired individuals. The system uses a modular pipeline of three CNNs for object detection, action recognition, and scene classification.
- Structured the outputs of these CNNs into 22,000 object-action-scene tuples. These tuples are fed into a large language model (LLM) to generate natural language captions describing the scene.
- Employed a scalable and efficient "divide and conquer" approach, the project demonstrated enhanced adaptability with twice the accuracy and potential for real-time deployment on edge devices.

RISC V based system

Aug 2023 - Nov 2023

- Led a 15-member team to build a complete RISC V architecture, from processor to high-level language. Integrated the system with a monitor and FPGA board, implementing programs such as the Snake game, achieving an A+ grade for the project.

E-commerce Website

Jan 2023 - Apr 2023

- Constructed front-end in NextJs and back-end in SQL and MongoDB. The back end is robust and follows normalization rules.
- Accomplished advanced features like OTP login, and login for different users (Buyer, Advertiser, and Seller) for website. Backend is divided into two parts and executed in two different databases for efficiency. Received A+ for the project.

Software Tool for analyzing UI energy smells

Jan 2023 - Apr 2023

- Created a tool to identify energy inefficiencies in ReactJs UI code via static code analysis. Reviewed the codes in Git Hub and came up with a catalog of bad code practices. Guided a team of five and received an A+ for the project.

ERP Website

Aug 2022 - Nov 2022

- Spearheaded a team of 6 and made interoperable modules for the ERP website of IIT Tirupati. MERN stack was deployed. Received A+ for the Project.

RESEARCH EXPERIENCE

Indian Institute of Technology Tirupati (IIT T)

Tirupati, India

Bachelors Research Project

Aug 2023 - Jun 2024

- Led a team to develop the Smooth Functional Actor-Critic (SFAC) RL algorithm, achieving superior performance on six environments.
- Authored a research paper titled "Smooth Functional Actor-Critic, submitted to the European Conference on Artificial Intelligence (ECAI) 2024, demonstrating superior results across six diverse environments.
- Conducted a comprehensive literature review on delayed reward problems, assessing over 30 papers.

MITACS/University of Saskatchewan

Saskatoon, Canada

MITACS Global Research Intern

May 2023 - Aug 2023

- Explored algorithmic complexities of 3SUM-hard problems in 2 ways, classical and quantum computing, identifying optimization techniques for graph and number-theoretic challenges.
- Collaborated with interdisciplinary teams to construct a literature review and propose novel quantum approaches for efficient computation. Provided weekly updates and executed algorithmic solutions.

Indian Institute of Technology Madras (IIT M)

Chennai, India

Research Intern

May 2022 - Jul 2022

- Optimized graph algorithm performance by performing parallel algorithms in CUDA.
- Enhanced execution speeds by 2 times through software-hardware integration, coordinating a cross-functional team.

SKILLS

Programming Languages: Experienced programmer in C, C++, Java, Python, JavaScript, and CUDA.

Web Development: Organized website development using HTML, CSS, Bootstrap, MERN stack, and NextJs.

App Development: Organized app development using Java and Android Studio.