# Anusha Lavanuru

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## Education

**Columbia University, New York** Aug 2023 - Dec 2024
- Master of Science, **Computer Science**
- **Courses:** ML, NLP, Algorithms, Databases, UI Design, VR/AR, Graphics, Human Computer Interaction, Data Visualization
- **Teaching Assistant:** UI Design (Fall '24), Introduction to Databases(Spring '24), Computing in Context( Fall '23)

**Gokaraju Rangaraju Institute of Engineering and Technology, India** July 2017 - May 2021
- Bachelor of Technology, **Computer Science and Engineering**
- **Courses:** Algorithms, Data Structures, AI, Calculus, Probability & Statistics, Big Data, OS, Networks, Databases
- **Achievements**: Merit scholarship, Department topper accolade

## Work Experience

**Research Assistant | Computer Graphics and User Interfaces Lab** Sept 2024 - present
- Developed and optimized the **UI/UX** for the PolXR application on **Oculus Quest 2** using **Unity** and **C#**, creating intuitive interfaces for geospatial data exploration improving user experience for glaciology research community
- Implemented shared mode networking with **Photon Fusion**, Integrated dynamic **load-on-select** radargram rendering, reducing memory usage by **45%**, cutting scene load times by **40%**,and maintaining high-resolution **echogram** visuals.
- Streamlined **XR** workflows by implementing a modular **radargram** architecture, enabling scalable multi-platform deployment and untethered experiences with **60fps** performance and **<100ms** latency remote networking.

**Research Assistant | Computer Enabled Abilities Lab** May 2024 - present
- Developed an **AR application** using **Unity** and **C#** for **android** device to preserve the history, safety, and community stories of the Harlem region, incorporating feedback from local stakeholders
- Designed application workflows in **Figma** to visualize interfaces, streamline **AR** development, reducing iteration time.
- Collaborated in co-design workshops, aligning features with user needs and contributing to a peer-reviewed abstract.

**SDE Intern | NomadFi** May 2024 - Sept 2024
- Engineered modular React components for a **fin-tech** platform, including the homepage, dashboards etc., utilizing advanced state management with **React Hooks**, **Context API**, & **Redux** to deliver a responsive **UI/UX**.
- Built an **OCR**-based invoice processing system in **Python**, automating the extraction of unstructured financial data, transforming it into a relational database format cutting manual processing time by **60%**
- Integrated a backend pipeline with **Java, Spring Boot**, optimizing **PostgreSQL** data retrieval, trimming latency by **25%**.
- Contributed to blockchain-based **RWA tokenization** by designing Ethereum-based architecture, integrating **APIs (Plaid, Teller)** for financial health assessment, and aligning features with trade finance standards

**Software Engineer | Shure Audio Technologies** Aug 2021 - Aug 2023
- Designed and implemented scalable software frameworks using **Python** and **Selenium**, automating 100+ test cases and reducing manual efforts by **70%**, significantly enhancing software quality.
- Developed back-end services and **CI/CD pipelines** using **Python** and **Jenkins**, streamlining build, testing, and release workflows, reducing deployment errors by **40%**, and improving delivery timelines by **35%**.
- Optimized product workflows, reliability by driving automation and addressing bottlenecks in **Agile** cross-functional teams.
- Led Shure's first software processor development, driving a **$1B** milestone, represented Shure Ind in global strategy meetings.

## Projects

**Image Enhancement using GANs**
- Developed a photo enhancement pipeline using **U-Net**, **Wasserstein GANs**, improving image quality by 30% on NUS dataset

**Probing GPT-2 Layers in Relationship Analysis**
- Probed **GPT-2** with **Baukit**, analyzing MLP and attention layers with **SNLI** corpus, trained classifiers on hidden states for identifying entailment, contradiction, and neutral relationships, revealing **incremental** learning across layers.

**Hand Gesture Recognition**
- Led a team of 4 to build a gesture recognition model using CNN to detect and classify gestures using CV libraries like **OpenCV** and **Tensorflow** which generated outputs with **98%** accuracy

**Postagging and Autocorrection**
- Explored multilingual POS tagging systems using **HMM**, **RNN**, **LSTM**, **BiLSTM** models for English, Bulgarian, Japanese.
- Evaluated an autocorrection system leveraging **n-gram** language models and **Viterbi** algorithm with edit distance

## Skills

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| Languages : | Python, Java, C++, C# React, JavaScript, TypeScript, SQL, postgreSQL, AWS, HTML, CSS |
| Tools : | FlaskAPI, Spring Boot, Git, Figma, Scala, Jira, Jenkins, Unity, Blender, Docker, Kubernetes |
| Python Libraries : | OpenCV, Pandas, NumPy, Scikit, Matplotlib, TensorFlow, MySQL, Pytorch, NLTK, Flask |