

Deepak Gupta

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Education

Virginia Tech (Virginia Polytechnic Institute and State University)

Jan 2023 – Dec 2024

Master of Engineering in Computer Science

GPA: **3.87/4.0**

- VR/AR Developer at Visualization and Virtual Reality Lab

Rajiv Gandhi Proudhyogiki Vishwavidyalaya

Aug 2014 – May 2018

Bachelor of Engineering in Electronics and Communication

Work Experience

MicroStrategy

May 2024 – Aug 2024

Software Development Engineer Intern (AI Services)

- Created backend APIs for MicroStrategy's business intelligence application, integrating Retrieval-Augmented Generation (RAG) with Large Language Models (LLMs) to enhance chatbot functionality.
- Achieved a **3x improvement** in data retrieval speed for RAG by switching from Azure AI Search to FAISS, leveraging its in-memory capabilities for faster processing.

GeekyAnts | Reliance Jio: Client

Mar 2022 – Jan 2023

Software Development Engineer - 3

- Developed a React based Design System for Reliance Jio, implemented in 10+ websites and serving **millions of users**.
- Independently designed and implemented over 10 key components, such as Stepper and Cards, enhancing the user experience; **led a team of 4** software engineers.
- Mentored six software engineering interns in full-stack development, all of whom were converted to full-time positions.
- Collaborated on an in-house project to create the office building in Virtual Reality using Unity.

GeekyAnts | Rivian Automotive: Client

Jul 2020 – Feb 2022

Software Development Engineer – 1

- Architected and developed microservices on AWS to efficiently process data for analytics, achieving low-latency data processing from multiple streams.
- Implemented notification services, handled scaling, effective deliveries, and made plugins to automate development.
- Published an open-source plugin on npm store for serverless framework (AWS) that has **100,000+ downloads**.
- Built a presentation/authorizing tool compatible with any LMS using React and Node.js, including components like collider systems, grids, and guidelines with snapping functionality.

Tata Consultancy Services

July 2018 – July 2019

Assistant System Engineer

Migrated a safe mode application from an older version of Java to Java 8, leveraging functional programming paradigms and the Streams API for improved scalability.

Research Experience

- Co-authored a research paper titled "From VR Controllers to Multi-User Immersive Educational Experiences in Digital Cultural Heritage: The Case of Sheikh Isa House in Bahrain," accepted for publication at **ASCAAD 2024**. Presented research at **Gensler** and exhibited at ICAT Day at Virginia Tech, showcasing innovative applications of VR in education.
- Secured a **\$1,000 university grant** to lead a project on Haptic-Enhanced Performance Simulation in Virtual Reality, focusing on enhancing user interaction and engagement.
- Currently involved in designing an immersive educational experience through the development of a Virtual Reality application and an Augmented Reality app for controlling multi-projected displays.

Skills

Programming Languages: Python, JavaScript, Java, C#, C++, TypeScript

Others: AWS, TensorFlow, OpenCV, OpenXR, Node.js, React, LangChain, Next.js, FAISS, Unity, Unreal, Redis, Flask, SQL, Redux, HTML, CSS, Git

Projects

AI Learns to Play a Game

- Implemented the Neuro-Evolution of Augmenting Topologies (NEAT) genetic algorithm on the game Flappy Bird
- Built a custom Neural Network and supporting matrix library from scratch to support the NEAT implementation.

Voice-Enabled AI Assistant with Retrieval-Augmented Generation (RAG)

- Developed a voice-interactive application using (LLM) with Whisper for speech-to-text and Azure for text-to-speech.
- Enhanced LLM responses with Retrieval-Augmented Generation (RAG) using Chroma vector store for data retrieval.

Data Visualization in Virtual Reality

- Built Visualizations for Virtual Reality based on Choropleth & Heatmaps to show light distribution data of houses.
- The project includes novel techniques of visualization in VR with haptic interaction made using Unity.

Data Science Website - padhaitime.com

- Designed & Developed Backend, and Frontend from scratch and contributed articles.
- Created a website that teaches Python, Data Science, Machine Learning, etc., and has 50,000+ web visits.