Pranav Pushkar Mishra

773-280-4615 | pmishr23@uic.edu | LinkedIn / pranavgamedev | Github / PranavMishra17 | Portfolio

Education

Master of Science, Computer Science [Graduate Assistant] *Aug 2023 - May 2025*
University of Illinois at Chicago, Illinois, USA GPA: 3.6/4.0

Bachelor of Science, Computer Science and Engineering *Aug 2019 - June 2023*
Dayananda Sagar College of Engineering, Bangalore, Karnataka, India GPA: 4.0/4.0

Technical Experience

UIC: V-ARE Labs | Research Software Engineer *Feb 2024 - Present*

- Architected virtual patient system using Unreal Engine 5 and C++. Deployed REST APIs with Python backend ↗
- Established CI/CD pipeline for research participant testing, enabling 2x faster deployment cycles
- Engineered MedRAG avatar platform with full-stack architecture utilizing React front-end and Azure cloud services ↗
- Integrated LangChain with OpenAI API, implemented PostgreSQL database with vector search for custom RAGs.

Bipolar Factory | Software Developer Intern *March 2023 - May 2023*

- Developed Metawood gamified streaming platform using MERN stack (MongoDB, Express.js, React, Node.js) with TypeScript integration. Established AWS cloud deployment pipeline following Agile development methodologies.
- Built in-game communication systems using C# and Unity, integrating MongoDB with SQL optimization.
- Engineered in-game theater (10% retention increase) with Git workflows, and Quality Assurance testing protocols.

Projects

Big5-Agents: Integrating Teamwork Components into Multi-Agent Systems *GitHub*

- Engineered collaborative multi-agent framework using Python and Azure cloud services for medical QnA applications.
- Optimized system performance through coordinated collaboration algorithms, achieving 93% decision-making accuracy and 15% computational overhead reduction via optimization techniques.

SnakeAI-MLOps: Multi-Agent Reinforcement Learning Snake Game *GitHub | Demo*

- Built C++ game with SFML and LibTorch, implementing MLOps pipeline with 4 RL algorithms, model comparison tools, and CI/CD deployment with Docker containerization achieving 5x training speedup through CUDA optimization.

Stellarium: A Space Odyssey - VR Star System *GitHub | Demo*

- Architected VR educational platform in Unity using C# and GLSL shaders, processing 107k+ stars astronomical datasets with Python data pipelines, improving performance by 30% via GPU instancing.

MetaRAG: Enhancing Document Retrieval with LLM-Driven Metadata Enrichment *GitHub*

- Architected production-grade RAG system using LangChain, Pinecone, and Azure cloud services.
- Delivered 92.5% precision and 25% hallucination reduction through hybrid search algorithms & custom retrievers, deploying scalable infrastructure with Kubernetes & Docker containerization.

Neon-Bites: Cyberpunk Food Delivery Game *GitHub | GamePlay*

- Engineered game mechanics using Unity and C# with object-oriented programming, implementing intelligent NPCs capable of dynamic side quest generation and reward distribution through SQL database integration.

AgentMafia: Multi-Agent Deduction Game *GitHub*

- Implemented intelligent gameplay programming through LangChain AI agents with TypeScript/JavaScript optimization, featuring responsive HTML/CSS interface design and scalable API architecture for multi-user interactions.

Extracurricular & Skills

Winner of MIT XR Hackathon | Built Meta Quest 3 app using Unity and Hugging Face for XR planning and design ↗

INFORMS Analytics+ Presented MetaRAG research to 700+ professionals | First place HINT 5.0 NFT virtual museum ↗

TECHNICAL SKILLS: C#, C++, Unity, Unreal Engine, GLSL, OpenGL, Vulkan, Python, JavaScript, React, Node.js, PostgreSQL, MongoDB, Git, Docker, .NET Framework

APPLICATIONS: Game Development, Virtual Reality, Computer Vision, Machine Learning, Object-Oriented Programming, Cross-Platform Development, Performance Optimization, Agile Development