Satrajit Ghosh

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Education

Rutgers University — New Brunswick, NJ
Master's in Electrical and Computer Engineering - Machine Learning Track; GPA: 4.0/4.0 — *Sep 2024 – Present*
- Research in agentic AI within custom C++/OpenGL game engine development
- Experimental analysis of the McGurk effect and its implications on deep learning models
- Relevant Coursework: Reinforcement Learning, Multimodal Deep Learning, Parallel and Distributed Computing

Princeton University — Princeton, NJ
Graduate Exchange Program Neural Rendering; Grade: A — *Spring 2025*
- Conducted research on neural rendering pipelines, including NeRF-based avatar synthesis and generative view selection
- Designed pose refinement module using Gaussian Fourier Features and contributed to transformer-based interaction modelling

Institute of Engineering and Management — Kolkata, India
Bachelor of Technology in Computer Science and Business Systems; GPA: 9.38/10 — *Oct 2020 – Jul 2024*
- President, AR/VR Club; 5th place Intel OneAPI, 1st place IEEE Elevate, 3rd place Google Solving for India
- Co-authored "VR Arena" in Springer Nature; Key coursework: OOP, DBMS, Automata Theory, Digital Electronics

Experience

Tech & Product Intern — Thirdbase Capital
New York · NY — *May 2025 – September 2025*
- Built investment scoring platform for private capital with enriched data pipelines
- Developed AI phishing detection system using behavioral anomaly modeling
- Delivered full-stack prototypes with model integration and competitive research

Researcher — Rutgers University (Sensing and Reasoning Lab)
New Jersey · USA — *June 2025 – Present*
- Designed and built high-fidelity simulation systems for autonomous vehicles using real-world driving data

AR/VR and ML Intern — IEMA Research and Development
Kolkata · India — *May 2022 – Oct 2023*
- Built 3D-Model of Ericsson facility using Blender and Unity for Microsoft HoloLens AR
- Created VR House Tour application on Oculus for client procurement and VR annotation tools
- Developed Mandarin Translator app with OpenAI for Indian military using Android Studio

Projects

Neural Character Generation from Unstructured Images
NeRF, Computer Vision, 3D Reconstruction
- Developed pipeline to generate photorealistic, animatable 3D avatars from unstructured image collections
- Refined camera poses using NeRFtrinsic and Gaussian Fourier Features with multimodal tokens (DINOv2 + pose + focal)
- Built transformer-based view selection module and attention-augmented NeRF for high-fidelity reconstruction

Custom 2D/3D Game Engine
C++, OpenGL, SFML
- Built modular game engine from scratch with real-time 2D/3D rendering, physics, and cloth simulation
- Implemented OpenGL pipeline, ECS architecture, and component systems for mesh, shader, camera abstractions

VR Exercise Game (Vitality VR)
Unity, Deep Learning, Google Cloud
- Built VR fitness game with web dashboard using Deep Learning deployed on Google Cloud
- Leveraged DNN for user behavior insights and GANs for diet suggestions; 3rd place Google Solving for India

Differential Equation Solver
CNN, Computer Vision
- Engineered handwriting recognition solver using custom CNN trained on math datasets for symbol classification

Intelligent Traffic Management System
YOLOv5, OCR
- Used YOLOv5 for traffic detection and OCR for license plate recognition; 5th place Intel OneAPI Hackathon

Technical Skills

Languages: C++, C#, Python, Java

Technologies: Unity, Blender, OpenGL, PyTorch, OpenCV, Firebase, Android Studio

Specializations: Machine Learning, Computer Vision, AR/VR Development, 3D Graphics, Game Engine Development

Certifications: Microsoft Azure Fundamentals, Data Science Foundations using R