Mudit Golchha

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CS grad student specializing in AI, ML/DL, and Reinforcement Learning, with experience in full-stack web dev and cloud systems.Always eager to tackle new challenges and expand my tech stack.

WORK EXPERIENCE

Universal Instruments Corporation, Summer Intern   May 2025 - Jun 2025

- Developed loT systems and edge device integrations to collect and transmit sensor data from factory hardware.
- Built cloud-based data pipelines and real-time dashboards to monitor throughput and performance metrics.
- Collaborated with cross-functional teams to enable smart, data-driven manufacturing and optimize workflow efficiency.

PROJECTS

Interpreter for MLang – A Custom Programming Language,   Jan 2025 - May 2025
Programming Languages | Individual Project

- Designed and implemented **MLang**, a custom programming language with a unique syntax, using ANTLR4 for parsing and Java for interpretation.
- Developed a complete **AST-based interpreter** supporting variables, control flow (if, while), arithmetic expressions, and print statements.
- Applied language design and compiler principles to build a modular front-end with scope handling, expression evaluation, and semantic checks.

RL-Based Self-Driving Car in Unity,   Aug 2024 - Dec 2024
Reinforcement Learning with Unity | Group Project

- Developed an **autonomous driving agent** using Proximal Policy Optimization** **(PPO) and Soft Actor-Critic (SAC), achieving a training time reduction from **1hr 21min to 22min**.
- Engineered a custom reward system with invisible checkpoints to encourage navigation efficiency, lane discipline, and obstacle avoidance.
- Integrated Unity's **RayPerceptionSensorComponent3D** for 3D environment sensing, enabling training on multiple tracks for improved policy generalization.

Optimizing ML Models for Early Brain Tumor Diagnosis,   Jan 2024 - May 2024
Machine Learning | Group Project

- Collaborated with 2 people to train 10 machine learning models on metabolite profiles, achieving **91.95% accuracy** with "EvoHDTree" model.
- Designed an interactive GUI for seamless visualization and user-friendly diagnosis interpretation.
- Evaluated models using AUC, accuracy, and F1-score, enhancing **c**lassification performance with ADASYN up-sampling.

TECHNICAL SKILLS

Languages: Java, Python, C++, C, Javascript, R

Software and OS: Xcode, Visual Studio Code, Jupyter Notebook, Git, Linux, Ubuntu, Hadoop

Additional: MERN Stack, MongoBD ,SQL Workbench, Data Visualization, Predictive Analysis , Streamlit

Certifications: 3D - Printing (SASTRA)

SUNY Binghamton University, Masters of Science - Computer science (AI)   Jan 2025 - Current

Cumulative GPA: 3.7 / 4.0

Relevant Coursework: Data Structures and Algorithms, ML, Programming Language

SASTRA University, Bachelors of Technology - Computer Science (AI and DS) Oct 2021 - May 2025

Cumulative GPA: 3.00/4.00

Relevant Coursework: AI , ML/DL, Reinforcement Learning, Full Stack developer

LEADERSHIP EXPERIENCE

Entrepreneur - Cell (SASTRA), Head of Estudio   Aug 2022 - Dec 2024

- Starting as the Executive Coordinator at The Entrepreneurial Cell, I honed my communication, collaboration, and teamwork skills by organizing events that promoted entrepreneurship within my university community
- My commitment as a photographer and videographer led to my current role as Head of Estudio, where I cover university events and produce videos that have collectively garnered over half a million views.

The_Unknowns (Band), Founder and Leader   Aug 2021 - Mar 2023

- Founded and led The_Unknowns, a dynamic college band, coordinating creative direction and live performance logistics.
- Performed as lead guitarist and sound engineer, enhancing audio quality for band battles and live events.
- Competed in numerous college competitions and performed at various weddings.