VINCENT LIU

vincentliu14177@gmail.com | https://vincentliu1417.github.io/VincentLiuCV.github.io

PROFESSIONAL EXPERIENCE

University of Georgia **Athens-Clarke County, GA, USA**
Undergraduate Research Assistant *May 2023 - March 2025*

- Conducted a systematic review of Intelligent Tutoring Systems (ITS) and Robot Tutoring Systems (RTS), analyzing 150+ peer-reviewed studies and evaluating AI, LLMs, machine learning, and HCI approaches to deliver personalized, real-time student feedback.
- Designed and executed experiments assessing ITS/RTS interventions, tracking 200+ student interactions and measuring engagement, learning outcomes, and adaptability to individual learning styles, achieving 15–20% improvement in retention scores compared to baseline.
- Developed and fine-tuned an LLM-based tutoring model for high school physics, enabling interactive, tailored learning experiences with real-time guidance for K–12 students, which improved student problem-solving accuracy by 18% during pilot trials.

Oracle **Cumming, GA, USA**
Software Engineer *August 2020 - May 2021*

- Developed and deployed a full-stack Python application automating monthly electrical and water bill calculations, reducing manual processing time by 50% and improving accuracy.
- Designed and implemented a responsive front-end using HTML and CSS, enabling interactive visualization of billing data for 100+ users.
- Engineered back-end logic with Python and SQL, processing large datasets, integrating with databases, and ensuring consistent, reliable calculations.

EDUCATION

Georgia Institute of Technology **January 2025 - December 2026**
Master's, Computer Science *GPA: 4*

University of Georgia **August 2021 - December 2024**
Bachelor's, Computer Science *GPA: 3.96*

SKILLS

Machine Learning: Python, OpenCV, NumPy, Computer Vision, Reinforcement Learning, Natural Language Processing (NLP), LLM, Pandas, Pytorch, Scikit-learn, SQL, Tensorflow, MATLAB
Software Engineering: Java, C#, AWS, HTML/CSS, JavaScript, React.js, MongoDB, MySQL, Git, Node.js, Figma
Game Development: Unity, Unreal Engine, Blender, VR/AR, Lua, Animation

PROJECTS & OUTSIDE EXPERIENCE

Infect, Detect, Protect

- Utilizing Unity Machine Learning Agents, I led the development of a innovate simulation aimed at
- modeling the behavior of cancer-fighting cells
- Meticulously crafting the attributes and actions of various cell types, including healthy cells, cancerous
- cells, and specialized white blood cells tasked with combating cancer
- Trained the simulation through reinforcement and imitation learning to produce effective strategies for
- identifying and neutralizing cancerous threats

Forza Motorsport Racing AI

- Developed a full RL-CNN pipeline to autonomously navigate racing tracks, integrating computer vision for real-time feature extraction and reinforcement learning for decision-making.
- Processed game frames to detect track boundaries, obstacles, and opponent positions, feeding structured features into a convolutional neural network to represent the game state.
- Trained the RL agent using simulation-based feedback to optimize lap times, reduce collisions, and strengthen racing techniques.