Yueying Liu

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EDUCATION

University of Massachusetts Lowell (GPA: 3.8/4.0) *Lowell, MA, Sep 2017 - May 2022*

Degrees: Master of Science in Computer Science,
Bachelor of Science in Computer Science, Minor in Mathematics

Relevant courses: Machine Learning, Data Mining, Artificial Intelligence, Computer graphics, Computer architecture, Organization of programming languages, Assembly programming language, GUI

SKILLS

- **Coding:** Python (Pandas, PyTorch, multiprocessing, TensorFlow, etc.), C/C++, HTML, CSS, JavaScript, R, Java, SQL, etc
- **Tools:** MS Office, MS SQL Server, MySQL, R Studio, AWS, Linux, Visual Studio, Neo4j, PyCharm, Java IDE, git, Jupiter, Unreal Engine 5, Blender, Github, etc.
- **Languages:** Chinese (Mandarin), English

WORK EXPERIENCE

Researcher Assistant *Mar 2021 – July 2023*

University of Massachusetts Lowell Department of Civil and Environmental Engineering

- **Data Management and Analysis:** Expertly decoded and pre-processed various datasets including Waymo's Automatic Driven Vehicle motion data, crafting customized datasets for AI behavior classification and enhancing data pools with artificial data points using a **generative adversarial network (GAN)**.
- **Web and Software Development:** Contributed to **the full-stack development of an internal data-driven website** using HTML, JavaScript, Python, and SQL, effectively showcasing enriched data pools and detailed research findings.
- **Advanced Data Visualization:** Utilized data from processed datasets to **recreate and visualize traffic scenarios**, enabling accurate visual representation and assessment of original traffic conditions for analysis.
- **AI Development and Training:** Developed and differentiated AI-driven from human-driven vehicles using **machine learning techniques** and contributed to building a **Reinforcement Learning AI**, setting up advanced training environments on **AWS** to support AI functionality.

PROJECT

Topdown Autoshooter Game Project *Jan 2024 - Present*

- **Core Game Development:** Contributed to design and implementation of **fundamental game systems** using **C++** and **Unreal Engine 5**, enhancing player interactions and game mechanics. Developed a comprehensive inventory and equipment system to support extensive character customization and progression.
- **AI and Interaction Design:** Conceptualized and coded diverse enemy behaviors such as attack, chase, and dodge, enriching gameplay dynamics. Additionally, created **dynamic and intuitive interfaces** for effective player engagement and object manipulation within the game environment.
- **Content and Asset Production:** Directed the creation of cinematic cutscenes and compelling game quests using Unreal Engine 5, alongside designing engaging game scenes, character narratives, and developing reusable assets such as 3D models and diverse game maps, thereby enriching the game's narrative and visual appeal.

Prostate cancer grade project *Mar 2022 – May 2022*

- **Data Preprocessing:** Prepared source images of prostate tissue to meet the specific input requirements of the machine learning model, optimizing data for analytical processing.
- **Image Classification:** Implemented a **convolutional neural network (CNN) model** to classify prostate tissue images, enhancing the accuracy and efficiency of medical diagnoses for prostate cancer.
- **Leadership and Presentation:** Led the project team, organizing and delegating tasks effectively. Presented comprehensive project results to an audience, highlighting key findings and methodologies.

Gomoku Game with Adjustable AI Difficulties *Sep 2020 – Dec 2020*

- **Game Development:** Implemented the base Gomoku game using the **Pygame** library, enabling both local multiplayer and a robust environment for AI integration.
- **AI Development:** Developed an AI for Gomoku that supports solo gameplay, employing the **Mini-Max algorithm** to simulate intelligent opponent behaviors.
- **AI Customization:** Introduced an AI difficulty adjustment feature, allowing players of various skill levels to enjoy the game by altering the tree search depth.