OLLY (ZIQI) GUO Madison, WI 53715 ◆ zguo295@wisc.edu **GITHUB:** HTTPS://GITHUB.COM/OLLIE II

University of Wisconsin-Madison | Madison, WI Expected Graduation: December 2025

Bachelor of Science: Computer Science with certificates in Game Design
• Relevant Coursework & Techniques: Familiar multiple AI techniques like Machine Learning in Data Analysis and CV, Clustering Algorithms, Reinforcement Learning. Fluent in data processing and cleaning techniques and tools. Full-Stack Game Development with Java, JavaScript, Python, C#, Unity.

EXPERIENCE

Undergraduate Researcher | Wisconsin Institute of Discovery| Madison, WI January 2024 - present

- Developed predictive models using K-Nearest Neighbors and Random Forest to analyze sequential player data in Virtual Reality games, identifying early quitting behavior and improving player retention; achieved an accuracy of 80% on original test data and 77% on new datasets.
- Integrated machine learning models into interactive gameplay systems, providing real-time adaptive player feedback, enhancing user experience, and collecting further data to refine user-centered interventions.
- Analyzed experimental results to understand factors influencing early quitting behavior, enabling the design of targeted intervention strategies for improving player engagement.
- Expanded and tested model generalization across diverse game datasets, demonstrating moderate transferability and laying groundwork for broader application in user-centered game design.

Undergraduate Researcher | Department of Computer Science | Madison, WI September 2024 - present

- Utilized Q-learning and Policy Gradient methods to compute the Nash-Equilibrium matrix, training multi-agent systems under partial observability for gameplay scenarios.
- Designed and implemented optimization algorithms, including gradient ascent and backward propagation, specifically adapted in Java for solving partially observable Markov games.
- Developed and visualized a Partially Observable Markov Game Solver using exact methods, including discretization of belief-state spaces and iterative elimination of dominated strategies.

Undergraduate Researcher | Department of Astronomy | Madison, WI October 2022 - July 2023

- Developed a neural network model to accurately identify Red Clump Stars, overcoming traditional observational limitations, and provided computational evidence validating the previously hypothesized correlation between the presence of Red Clump Stars and Galaxy Bars.
- Computationally and observationally analyzed the density structures within the Milky Way Galaxy, using identified bar structures as key indicators to probe galaxy evolution processes and validate N-body simulations with real astronomical observations.

Undergraduate Researcher | Department of Theatre | Madison, WI May 2023 - present

- Planned and developed two versions of the interactive environment two versions of the one-on-one VR environment for Beyond the Garden of Adrian in Unity (C#). Prototyped the virtual stage and its assistive logic to deliver context-aware immersive interfaces.
- Surveyed over 30 test participants to investigate transformational gameplay in virtual reality settings. Pinpointing factors that shape the scale and intimacy between the virtual environment, actor, and audience; integrated survey results to produce an updated version accepted to Festival d'Avignon.

Senior Narrative Design & Developer| Minerva Studio | Madison, WI September 2022 - present

- Led narrative and gameplay design for the 2D rogue-like game Library of Meialia, developing interactive storytelling, immersive dialogues; integrated encyclopedia interfaces using Unity, C#, and Lua; released playable demo on Steam.
- Collaborated across multidisciplinary teams—including graphic designers, composers, and programmers—to seamlessly integrate narrative elements with gameplay, maintaining smooth flow and a compelling, player-centered experience.
- Actively refined core mechanics, combat systems, and user interface (UI/UX) design to create intuitive and immersive gameplay.

INVOLVEMENTS

Peer Mentor | Department of Computer Science| Madison, WI September 2024 - present

- Assisted in teaching Introduction to Artificial Intelligence, addressing search techniques, automatic deduction, machine learning, probabilistic reasoning. Applications in tasks such as problem solving, data mining, game playing, natural language understanding, computer vision, speech recognition, and robotics.
- Assisted in teaching Computer Graphics, addressing Modeling, transformation, and display of geometric objects in two and three dimensions. Representation of curves and surfaces. Rendering, animation, multi-media and visualization.