Jason Xu

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EDUCATION

University of California Santa Cruz, Baskin School of Engineering September 2023 – June 2025
Master of Science in Computational Science | GPA: 3.85/4.0
Northwestern University, Evanston, Illinois
Bachelor of Arts in Neuroscience**,** Computations and Systems Modeling September 2018 – September 2022

SKILLS

Programming Languages: C++, C#, Python, SQL, JavaScript, R, MATLAB, HTML5/CSS3.
Tools/Frameworks: Unreal Engine 4/5, Unity, SQLite, SQL, SFML, PyTorch, Scikit-Learn, Numpy, Matplotlib, Pandas, PyVista, OpenCV, Gymnasium, Selenium, Robot Framework, Brace Tools, LM Studio
Certifications: Sophos Central Endpoint and Server v4.0 – Engineer/Architect

EXPERIENCE

Design Reasoning Lab, University of California Santa Cruz September 2023 - Present
Graduate Researcher

- Designed and developed an automated testing framework in C++ that adapts the Go-Explore Algorithm for testing reachability bugs in 3D levels in Unreal Engine 5 – *Foundation of Digital Games' 25 (Review)*
- Built and trained a supervised hybrid neural network using PyTorch, Python, and Pandas that was exported to Unreal Engine 5 to predict an optimal game state to test during exploration.

Code Ninjas
Coding Instructor February – September 2023

- Taught coding concepts such as loops, conditionals, and variables to elementary and middle school kids by building games using JavaScript and Scratch.
- Led coding bootcamps for students to teach game level design and concepts through Minecraft Modding and Roblox Studio.

GUII Lab, University of California Santa Cruz July 2022 – January 2023
Research Intern

- Developed and implemented Discord functionalities such as an interactive chatbot and puzzle games using python and Discord API for an alternate reality game (ARG) to study resilience in players – accepted to *Foundations of Digital Games '23* (https://dl.acm.org/doi/pdf/10.1145/3582437.3582474)
- Conducted participant interviews and qualitative coding for post-interview data analysis for studying self-regulated learning among League of Legends players – published in *Proceedings of the ACM on Human-Computer Interaction* (https://dl.acm.org/doi/10.1145/3677111)

Miri Lab, Northwestern University
Undergraduate Researcher/Work Study Student June 2019 – June 2021

- Measured and recorded neural activity in the striatal neurons of climbing mice using neural pixels.
- Performed spike-triggered averaging and transfer entropy to analyze and sort neural spikes from the neuronal recordings in MATLAB.

PROJECTS

TetraCube Demo | Deep Learning September 2022 – February 2023
Supervisors: Magy Seif El-Nasr and Johannes Pfau

- Built and trained a Multilayer Feed-Forward Network using C++ and Python for enemy agent decision making using player stat data in Unreal Engine 5.
- Implemented an SQLite database to collect and store and sort training data during runtime using C++ and SQL.

Game Performance Prediction | Quality Assurance Testing September 2024 - Present
Advisor: Adam Smith

- Built and trained Long Short-Term Memory (LSTM) model in Python using PyTorch and exported the model to Unreal Engine to predict FPS and GPU usage for different game levels across different platforms.
- Created and implemented dashboard and UI features to visualize and track performance stats across time and different platforms using C++ and Unreal Blueprints.