Yuchen(Mandy) Dai

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OBJECTIVE: Software Engineer

EDUCATION

Carnegie Mellon University	Pittsburgh, PA, USA
Master of Science in Electrical and Computer Engineering	*August 2024 – May 2025*
Bachelor of Science in Electrical and Computer Engineering	*August 2019 – May 2024*
Additional Major in Psychology	

SKILLS

Programming & Scripting: Python, Java, C, C++, C#, SQL, HTML, CSS, JavaScript, R, SystemVerilog
Technologies & Tools: Django, Pytorch, Numpy, Matlab, dplyr, AWS EC2, Google Cloud Platform, Autodesk Fusion 360, Git, Unity, Godot
Languages: English, Mandarin, Japanese (Basic)

WORKING EXPERIENCE

Carnegie Mellon University	Pittsburgh, PA
Research Assistant	*October 2024 – Present*

- Led collaboration with American Red Cross (ARC) clients and CMU professors to conceptualize and develop an **AI-powered disaster simulation software** for real-time instructional guidance.
- Transformed **Figma** designs into an interactive, gamified training simulation using **Unity**, bridging design and functionality.
- Integrated a **reinforcement learning pipeline** in partnership with the Machine Learning department to evaluate user performance, train AI agents, and dynamically optimize instructional strategies for improved training outcomes.

Starward Game Studios	Mountain View, California
Software Engineering Intern	*July 2024 – August 2024*

- Developed and deployed a functional, responsive website *starwardgames.com* using the **Framer framework** (**HTML/CSS/Javascript**) to convert **Figma** designs, and hosted the site on **GoDaddy**, ensuring cross-browser compatibility and an optimized user experience
- Addressed critical deployment issues, including **SSL** certificate installation and link conflict resolution, enhancing website security and efficiency
- Improved the website by implementing advanced **SEO** techniques, including keyword targeting, meta descriptions, and structured data (**JSON-LD**), which helped increase the organic traffic by 20%
- Led the development of key **UI** components for the real-time game log in a large-scale **Unity**-based project *AI Among Us*, an AI-based multiplayer mobile game, focusing on implementing the interface between server and clients for accurate in-game event tracking

Mengkexing Game Studios	Hefei, Anhui, China
Software Engineering Intern	*June 2024 – July 2024*

- Led the development of core software systems prototype for a new PC and Web game using **Godot** and **GDScript**, focusing on robust **distributed system architecture** and **scalable code development** to ensure product maintainability and polish
- Integrated complex game mechanics using clean, modular code and efficient data management systems, employing **singleton patterns** for **state management** and **object pooling** for optimized performance, in collaboration with artists and designers
- Designed and implemented software components following **object-oriented principles** such as inheritance, encapsulation, and polymorphism, enabling seamless future updates and feature expansions

Phalanx Analysis Group	San Francisco, California
Software Programming Intern	*July 2023 – August 2023*

- Designed and developed client-centric, fully responsive websites, including an e-commerce platform and a time-tracking system using **Django**, with an emphasis on user-friendly interfaces and enhanced functionalities
- Implemented and refined front-end technologies (**HTML, CSS, JavaScript, Bootstrap**), achieving mobile-first design and cross-browser compatibility, which improved the response time by 30%
- Built and optimized data pipelines for efficient data fetching, parsing, and formatting, integrating with a **NoSQL** database to ensure fast and reliable data storage and retrieval

Chinese Academy of Science	Hefei, Anhui, China
Software Engineering Intern	*February 2022 – May 2022*

- Developed a customized **reinforcement learning** model using **Q-learning**, increasing decision-making accuracy by 20% and enhancing the efficiency of simulated environments
- Processed over 100,000 data entries with **R Studio** and **SQL** to support and refine algorithm training, ensuring high data integrity for precise analyses
- Created dynamic data visualizations using the **Weights and Biases (WandB)** API and reports for weekly meetings, enhancing team collaboration and providing clearer insights for decision-making
- Automated data collection and pipeline processing using **Python scripts** and **SQL queries**, streamlining the workflow for real-time data updates and reducing processing time by 15%

ACADEMIC PROJECTS

Microgrid Simulation & Optimization Tool	*January 2024 – May 2024*

- Led and developed a web-based microgrid simulation tool utilizing the **Django web framework**, **Vis.js**, **Bootstrap**, and **AWS EC2** to visualize the optimization of GridLAB-D designs, facilitating dynamic visualization of power flow and load balancing
- Integrated **Recurrent Neural Network (RNN)** machine learning models to forecast the high accuracy solar, wind, and load information with less than 10% RMSE (Root Mean Square Error)
- **Leveraged historical weather data from APIs** and datasets like the **National Solar Radiation Database** and **Kaggle wind turbine data** to predict energy generation and demand