Zhongqian Duan

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Education

University of Michigan — Ann Arbor, MI
M.S.E. in Computer Science (GPA: 4.0 / 4.0) — Dec. 2023 (Expected)
- **Relevant Coursework:** Web Systems, Computer Networks, Parallel Computing, Natural Language Processing

University of Michigan — Ann Arbor, MI
B.S.E. in Computer Science (GPA: 3.9 / 4.0) — May. 2022
- **Relevant Coursework:** Operating Systems, Database Systems, Data Structures & Algorithms, Machine Learning, Computer Vision, Computer Game Development, Computer Security, Parallel Programming with GPUs

Shanghai Jiao Tong University — Shanghai, China
B.S.E. in Electrical and Computer Engineering (GPA: 3.7 / 4.0) — Aug. 2022

Internship Experience

Rec Room — Seattle, WA
Software Engineer Intern — Jan. 2023 – Apr. 2023
- Worked on the **UGC > Logic** team for the leading virtual reality gaming startup, **Rec Room** 🔗.
- Developed a Trail Component Chip with the CircuitV2 System to enhance the Survival the Night gameplay experience using **C#** and version control with **Git**.

NIO — Shanghai, China
Machine Learning Engineer Intern — May. 2021 – Aug. 2021
- Improved the 3D object tracking network for autonomous vehicles with **PyTorch**, resulting in a 4% increase in precision.
- Proposed a lightweight CNN to predict lens distortion parameters in **OpenCV** for removal.
- Applied pre-trained vision models, such as MaskRCNN, with different backbones to detect vehicles and lane lines, testing on over 2000 on-screen videos for autonomous driving systems.

Project Experience

Instagram Website Simulator
- Developed an Instagram clone with client-side dynamic pages using **React**, **Flask** app and **SQLite** database.
- Implemented real Instagram features, including login, post, comment, like, and follow, using **REST API**.
- Deployed the website on **AWS** to improve maintenance complexity.

Full Stack Website: Online Memory Cards
- Developed a full-stack website with responsive home and search function with **React, Node.js, and MongoDB** ⭘.
- Implemented login system to allow **CRUD** operations and deployed on Heroku and Netlify.

3D Horror Game: Asylum 7
- Led a team of 5 developers to build a horror, role-playing, escape game with 6 levels using **Unity** 🔗.
- Managed the project roadmap, development repo, and software build process using **Jira** and **Git**.
- Iterated and implemented game mechanics and design based on playtests with over 200 players. Participated in UM+EMU Games Showcase and ranked 3rd.

Operating System
- Implemented Linux thread library including thread, mutex, cv in **C++.** Tested it by writing multi-thread programs.
- Designed a pager to manage application processes' virtual address spaces using copy-on-write and LRU cache.
- Built a secure client-server file server by socket programming. Ensured consistency via designed order of disk writes.

Computer Network
- Implemented a video content distribution network(CDN) with adaptive bitrate selection and DNS load balancing.
- Built a reliable transport protocol on top of UDP, providing inorder delivery in the presence of packet loss.
- Built a router configured with a static routing table, which can forward IP and handle ARP packages.

Skills

Programming: C/C++, C#, Python, Java, JavaScript, Matlab, HTML, CSS, React.js, Node.js, Flask, MySQL, MongoDB
Tools and Frameworks: Git, LaTeX, CUDA, OpenMP, MPI, Pytorch, OpenCV, Scikit-learn, Unity3D, Linux, Django, AWS

Honors and Additional Experience

Honors: James B. Angell Scholar, 4 Term University Honors and Dean's List, Undergraduate Excellent Scholarship of SJTU
Full Stack Development: AR game with integrated NLP model and localization API ⭘, *Shanghai Jiao Tong University*
Teaching Assistant: EECS445, Machine Learning, *University of Michigan*
Research Assistant: Full High Definition Demoiréing ⭘, *Shanghai Jiao Tong University*