Zhongqian Duan

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Education

University of Michigan - Ann Arbor Aug. 2022 – Dec. 2023 (Expected)
M.S.E. in Computer Science and Engineering Ann Arbor, MI

University of Michigan - Ann Arbor Aug. 2020 – May 2022
B.S.E. in Computer Science Ann Arbor, MI

- Major GPA 3.98 / 4.0 | **Honors**: Dean's List, University Honors, James B. Angell Scholar
- A/A+ Courses: Operating Systems, Database Management Systems, Machine Learning, Computer Vision, Computer Game Design and 9 others

Shanghai Jiao Tong University Sep. 2018 – Aug. 2022
B.S.E. in Electrical and Computer Engineering Shanghai, China

- Major GPA 3.71 / 4.0 | **Honors**: Outstanding Student Scholarship of SJTU

Internship Experience

NIO - Autonomous Driving System May 2021 – Aug. 2021
Research Intern Shanghai, China

- Participated in the design and optimization of a 3D Object Tracking Network for autonomous vehicles. The model has a mAP of 0.386 on the nuScenes ranking board.
- Proposed a light-weight CNN with different backbones in **PyTorch** to predict lens distortion parameters and remove distortion from videos, which outperforms manual calibration for pincushion distortion, etc.

Research Experience

An Improved Method for Full High Definition Demoiréing Fall 2021
Independent research, advised by Dr.Jiong Chen HR-Demoire

- Proposed *netEdge* in **Pytorch** to predict the edge of moire-free images and reinforce the base network in low-resolution (increase PSNR by 2.6%).
- Proposed a image processing pipeline to utilize a pre-trained low-resolution network to high-resolution images: Downsample → Demoiré → Detail Restoration from high-resolution (increase PSNR by 5%).

Projects

AR Game: FantasyAR May 2022 – Aug. 2022
Capstone Peoject | SJTU FantasyAR

- Developed a location-based AR game with voice control (a full stack Android App) using **Unity**.
- Designed the UI/UX for the shop and battle scenes on **Android Studio**.
- Implemented a back-end server and a database with **Nginx** to store the player and monsters' information.

3D Horror Game: Asylum 7 Feb. 2022 – Apr. 2022
Capstone Project | UMich Asylum 7 Game Portfolio

- Developed a first-person horror and escape game with multi-levels using **Unity**.
- Implemented the core features of the game with **C#**, including task management, enemy AI and navigation,controls of trap and game story progression.

Operating System Project OS project

- Implemented a thread library, a virtual memory manager, and a network file server with **C++**.

Database Project - Fakebook DB project

- Designed a database to store information for the fictional social media platform Fakebook.
- Implemented a Java application that executes **SQL**, and a database structure – **Grace hash join**.

Generative Approach for Image Colorization CV project

- Proposed a generative adversarial network (GAN) for the image colorization task in **Pytorch** with SSIM of 0.88. And in 21% of the trials, the images generated by the GAN fooled the testers.

Skills

Programming Languages: C/C++, C#, Python, Java, MATLAB
Tools and Frameworks: Git, Pytorch, TensorFlow, LaTeX, MongoDB, MySQL, Mathematica, Unity, Arduino