ZIYI CHENG

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EDUCATION

University of Manchester(UoM) Sept 2023 - Jul 2024(expected)

- Master of Science in Robotics

Beijing University of Technology(BJUT) Sept 2019 - Jun 2023

- Bachelor of Science in Digital Media Technology(Hons) — **GPA**:3.75/4

RESEARCH INTERESTS

- Image Processing
- Robotics
- Machine Learning
- Virtual Reality/Augmented Reality

RESEARCH EXPERIENCE

Research on image compression algorithms based on deep learning Jan 2023 - Jun 2023
A research project led by Prof. Wang of BJUT

- Proposed an end-to-end image compression framework based on deep learning, which achieves better compression both subjectively and objectively.
- Proposed the Quick Depth-Residual Attention Module(Q-DRAM), which improves the method by 0.23db (PSNR).
- Proposed the post-processing module, which improves the method by 0.13db (PSNR).
- Introduced the Gaussian Mixture Model and Checkerboard Context Model to improve the effectiveness and efficiency of the model.

Machine learning-based study to distinguish sea otters from river otters Jun 2022 - Sept 2022
A research project led by Prof. Rogers of the University of Oxford

- Collected dataset on sea otters and river otters.
- Used MobileNetV2 to train the classification model.
- Deployed models to ESP32 with recognition accuracy of 96.63%.
- Contacted the animal protection organizations in an attempt to deploy equipment in the field to help better protect sea otters and otters.

Research on face reconstruction based on 3DMM and neural networks Sept 2021 - Jan 2022
A research project led by Prof. Wang of BJUT

- Combined 3DMM algorithms and neural networks into an end-to-end framework.
- Implemented the algorithm using MATLAB.
- Developed a desktop application for real-time face capture and training reconstruction.

PROFESSIONAL PROJECTS

Virtual Winter Olympic Village Mar 2022 - Jun 2022
A research-based practical project *Group leader*

- Created the Beijing Winter Olympic Village in Unity.
- Created 5 different interaction scenarios and 36 interactable objects.

- A more interaction-designed workflow has been explored for group work.

Beijing 2022 Olympic and Paralympic Winter Games Nov 2021 - May 2022
An international sporting event *Assistant Technical Manager*

- Provided technical support to athletes and officials in the Beijing Winter Olympic Village.
- Responsible for writing daily operational reports and coordinating the work of various operational ports within the department.
- Responsible for translation in the technical field.

POP ART FIGHT 2D Game Jun 2021 - Jul 2021
A practical project *Group leader*

- Conducted research and analysis of the gaming market.
- Defined the type of game, its mechanics and how it will interact.
- Game development using C# programming in Unity.

OGI Immersive Space Mar 2021 - Jul 2021
A research-based practical project *Developer*

- Designed and implemented an immersive Olympic venue, venue introduction, and Winter Olympic sports popularisation system based on Mixed Reality (MR) technology.
- Conducted basic information research on the four competition venues in the 2022 Beijing Winter Olympic Games, extracted and designed visualization and interactive elements for the Olympic Games.
- Built LowPoly style models of the Ice Cube and Shougang Ski Jump using Maya, Substance Painter, and other tools.
- Developed interactive scenes in Unity engine and deployed them to HoloLens2 devices.

PUBLICATIONS & WORKING PAPERS

- Z. Cheng. Based on Machine Learning: Differentiating between Sea Otters and River Otters[c]. The 3rd International Conference on Signal Processing and Machine Learning (CONF-SPML 2023).
- Z. Cheng. A Fast Learned Image Compression with Quick Depth-Residual Attention Module(Q-DRAM) and Post-processing.[J]. Multimedia tools and applications.(Under review)

SELECTED AWARDS & HONOR

- National First Prize, China Student Computer Design Competition(VR/AR Interaction Track)
- Merit Student of Beijing(Top 1%)
- Outstanding gratuate of Beijing(Top 1%)
- Bachelor's Degree with Honours, BJUT(Top 5%)
- First-grade Academic Scholarship, BJUT(Top 5%)