Zong-Ying Kuo

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EDUCATION

University of Southern California, United States   Expected May 2024

M.S. in Computer Science - Multimedia and Creative Technologies (Second Year)

- Courses: Multimedia System Design, Analysis of Algorithms

National Central University, Taiwan   Sep. 2017 – Jun. 2021

B.S. in Computer Science and Information Engineering

- Courses: Agile Method, Computer Network, Database, Machine Learning, Computer Vision, Computer Graphics

SKILLS

C/C++, SQL, Python, Java, HTML, CSS, JavaScript, C#, Linux, Swift, OpenGL, Unity, Unreal Engine 5, MATLAB, KinectV2

WORK EXPERIENCE

Advanced Visualization Intern (Remote)   May. 2023 – Aug. 2023

Hexagon Manufacturing Intelligence, United States

Helped with developing visualization products and participated in the discussion and development of a new **proof-of-concept product** that will test the market validity of the concept of bringing "**digital twins** to life in the **manufacturing metaverse**":

Robot Arm Animation   Skills: Javascript, Typescript

- Made a keyframe animation of a robot arm digital twin by interpolating between the joint angle values in each keyframe, the animation was presented in Hexagon's private conference

Virtual CNC machine Trainer   Skills: Unreal Engine 5, C++

- Developed a **virtual reality** version of Hexagon's physical CNC machine trainer where users can enter a virtual environment, import their g-codes into the CNC machine digital twin and see the machine operating according to the g-code

PROJECT EXPERIENCE

Water Level Detector – Wireless Communications and Networks Course Project   Skills: C++
- Used a conductivity detector to detect water level and transmit a warning message to a cellphone by MQTT protocol using a LoRa node device if the water level is too high
- Used it on a bathtub to detect if the water is almost full

Student Grade System – Agile Method Course Project   Skills: Java, JUnit
- Implemented a student grade system where users can insert or delete a new student's personal information and test scores and calculate his or her final score of a specific course
- The project is built using agile methods development process. Concepts include user story, test case, test code, pseudo code, source code testing and pair programming.

Course Registration System – Database Course Project   Skills: SQL
- Implemented a course registration system where users can search for the information of a specific course and register for a course

Flip Card Game   Skills: Swift
- Implemented a flip card game IOS app, players flip cards, memorize the pattern, and try to flip 2 cards that have the same pattern.

Hotel Internet System – Introduction of Networking and Its Practices Course Project
- Built an Internet System in a hotel using CISCO Packet Tracer Software
- Designed the configuration of wired network and wireless network(router) and assigned gateway, IP address for clients manually

3D Teapot Rendering – 3D Computer Graphics Course Project   Skills: C++, OpenGL
- Implemented 3D graphics pipeline to render a 3D teapot
- Implemented all the functions (Bresenham's line algorithm, 3D transformation and projection, clipping, hidden surface removal from scratch without calling OpenGL functions