Chung-Wei (Denis) Wu

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SKILLS

Programming Language: C/C++, Python, Java, MATLAB, TCL, SQL
IDE and tools: Visual Studio, OpenCV, Git, Jira, Linux, Docker, Microsoft Azure, Pytorch, MySQL, Django
Others: CI/CD, unit testing, data scraping, Embedded system

EDUCATION

University of Washington (UW), Seattle, WA — Sept. 2023 – Dec. 2024 (Expected)
- *M.S. in Electrical Engineering* — Overall GPA: 3.85
- Course: Database Systems, Applied Parallel Programming on GPU

National Tsing Hua University (NTHU), Hsinchu, Taiwan — Sept. 2019 – July 2021
- *M.S. in Electrical Engineering* — Overall GPA: 3.57
- Course: Advanced Computer Architecture, Deep Learning, Data Structure, Computational Photography

National Chiao Tung University (NCTU), Hsinchu, Taiwan — Sept. 2013 – June 2017
- *B.S. in Electrical and Computer Engineering* — Last 60 GPA: 3.62
- Course: Computer Architecture, Computer Vision, Computer Networks, Operating Systems

PROFESSIONAL EXPERIENCE

Novatek Microelectronics Corp. (Design display ASIC for Samsung, Sony, … etc.) — Sept. 2021 – June 2023
Software Engineer
- Developed and optimized the embedded Linux kernel space driver in C for the control of the picture engine's display pipeline inside the ARM-based TV system-on-chip (SoC), including the display signal timing and display features like image sizing
- Implemented APIs based on client's request to link different layers between the user and the kernel side and customized the driver for advanced display features for the 2022/2023 Android-based smart TV products
- Support clients and FAE teams in debugging issues with anomalous display and erroneous signal timing from software view
- Developed and maintained a CI/CD pipeline by authoring TCL unit test scripts to automate the validation of kernel driver codebases within the Git repository, ensuring the integrity of IC functionalities and display features

SELECTED PROJECTS

Leveraging AI to Identify the KOL, UW Capstone project with Genmab — Jan. 2024
- Developed a front-end application with web-based UI and algorithm in Python based on machine learning (ML) to identify key opinion leaders (KOLs) in the pharmaceutical industry
- Implemented a Python-based web scraping script for machine learning algorithm's inputs, including dataset retrieval from online databases such as Pubmed and ClinicalTrials.gov, feature extraction, and dataset preprocessing using NetworkX
- Constructed a Graph Neural Network (GNN) with PyTorch to calculate centrality scores for individuals, facilitating the identification of KOLs through score-based ranking
- Developed the back-end system in python with Django REST framework and MySQL database to provide RESTful API for the front-end application

Appointment Reservation System, Database Systems course, UW — Nov 2023
- Develop a Java and SQL-based vaccination appointment booking system for patients and caregivers
- Using Microsoft Azure as online database to store user and appointment data
- Increasing security of user by applying cryptography technique with PBKDF2 algorithm on personal data

Clothes Style Transformer, Computational Photography Course, NTHU — June 2020
- Developed image processing flow in Python to simulate a virtual dressing room with only conventional algorithms using Spyder and Jupyter Lab
- Implemented image segmentation to identify the border of cloth by applying Flood Fill algorithm and morphological processing with OpenCV
- Utilized normal mapping to maintain the light, shadow, and wrinkles of clothes appearing in original images
- Won the third place among 10 groups

MASTER'S THESIS AT NTHU

"**Improving Conventional Color Doppler Ultrasound with Linear Prediction Extrapolation**" — Aug. 2021
- Proposed a signal processing algorithm to improve clutter filter performance in medical ultrasound imaging systems, doubling video frame rate and enhancing blood flow velocity estimation / signal intensity for cardiology imaging
- Derived the theory and signal model of extrapolating Doppler ultrasound dataset for imaging using frequency-domain linear prediction filtering (FXPF)
- Implemented the software in MATLAB based on FXPF, achieving 5dB improvement in signal-to-noise ratio (SNR) in a phantom experiment
- Conducted in vivo experiments on rat brains, verifying real-world performance improvements with an 8% reduction in the mean-square-error (MSE) of flow velocity estimation
- Accepted by GCBME 2020 (Oral presentation)