

WU Haiyang, Ocean

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EDUCATION

National University of Singapore

Aug 2022 – Dec 2023

MSc, Venture Creation

- Courses: AIoT Solution and Development, Intellectual Property Law, New Venture Capital

University of Glasgow

Sep 2018 – Jul 2022

BEng(Hons), Electronics and Electrical Engineering

- Courses: Digital Communication, Microelectronic System, Embedded Processor, Electronic Devices, VLSI Design

University of Electronic Science and Technology of China

Sep 2018 – Jul 2022

BEng, Electronic Information Engineering

- Courses: Deep Learning, Digital Signal Processing, Signals and Systems, Electromagnetic Fields and Waves

University of California, at Berkeley

June 2019 – Sep 2019

Term Exchange, Electrical Engineering and Computer Sciences

- Courses: Data Structures, Foundations of Data Science

PROJECTS

Real-time Caring System for Elderly

Jan 2023 – Apr 2023

Supervisor: Assoc Prof. Tan Wee Kek, NUS

- Temperature data collected and pre-processed on the edge (Smart watch and Micro:bit).
- Pose estimated by MoveNet model running in real-time on the fog (Raspberry Pi).
- Improved the accuracy of MoveNet by masking the dark region of the image.
- Trained decision tree classifier to detect falling down, with an accuracy of 90%.
- Implemented a Django based backend, and a SQL database on the Google Cloud.
- Developed a web page to show the alert when detecting falling, arrhythmia, and hyperthermia.

Open-domain Dialogue System (Chatbot)

Jan 2022 – June 2022

Supervisor: Prof Qing Ke, UESTC

- Optimized the system in terms of response consistency, coherence, and diversity.
- Improved context-aware by utilizing Hierarchical Recurrent Encoder-Decoder (HRED) model.
- Implemented a generative system that applies Seq2Seq model to map user messages and dialogue history into response sequences.
- Designed a new architecture that applied a word-level LSTM to encode dialogue contexts, and then applied a Self-attention mechanism to update the utterance representations.
- Trained the model on Cornell Movie-Dialogs Corpus to improve its performance.

Automatic Line Patrol Car

Feb 2021 – June 2021

Supervisor: Dr Rami Ghannam, U of Glasgow

- Optimized the canny operator and PID controller.
- Investigate and propose a patrolling algorithm and enhanced edge detection.
- Denoised the image using Gaussian filter, followed by the corrosion and expansion operation.
- Designed PCB and assembled STM32, HC-12, L9110S (motor drive), OpenMV4 H7 (camera), etc.

PROFESSIONAL EXPERIENCE

Data Science Intern, Youth.AI Pte Ltd.

July 2022 – Feb 2023

AI-enabled screening for early signs of mental well-being difficulties in youth

Singapore

- Collected posture data and questionnaires from 518 students.
- Used kNN to recognize the numerical answer from questionnaires.
- Wrote a python script to analyze and visualize the questionnaire answers based on clinical standard.
- Data exploring on patterns behind walking speed, stride length, head movement, arm swing, and body sway.
- Denoised and resampled posture data. Used Fast Fourier Transforms (FFT) to extract frequency domain features.
- Applied epsilon-support vector regression to recognize anxiety and depression levels, and applied random forest classifier to detect specific depressive symptoms, with predictive accuracy of 70%.

SKILLS

- **AI & IoT:** {Pandas, Scikit-learn, NLTK, PyTorch, MATLAB} {Micro:bit, Raspberry Pi, ESP32, Arm Mbed}
- **Software & Hardware:** {HTML, CSS, JavaScript, Flask, Django, MySQL} {Altium Designer, Vivado, Verilog}
- **Efficiency:** {SolidWorks, MS Suite}