Yu-Ching Hsu

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SKILLS

Git | Python | C | Javascript | Typescript | Node.js | Angular | SQL | MongoDB | Linux | HTTP | MFC | HTML | Sass | CSS | D3 | Tensorflow | Pytorch | Java

EXPERIENCE

Logitech Inc.
July 2018 – Sep 2018

SW/FW Engineer Intern — C | C++ | MFC

- Developed a SW application that can access real-time streaming data from webcam with ability to control the focus, white balance, and exposure through USB protocol.
- Sped up the development process for auto focus in webcam by visualizing the motor and image quality parameters in real-time chart.
- Resolved compatibility issues from webcam to conference camera by designing a byte-mapping confirmation mechanism in firmware.
- Developed a human face detection algorithm to improve the auto focus.

EDUCATION

University of Utah
2019 – **May** 2021

MS, Computer Science — GPA:3.62/4.0

- Advanced Algorithms, Computer Architecture
- Web Browser, Data Visualization, Data Mining, Info Retrieval
- Deep Learning, Computer Vision, Nature Language Processing

Yuan Ze University
2018 – 2019

MS, Electrical Engineering — GPA:4.0/4.0

- Thesis: "Automatic Elevator Button Recognition with CNN Feedback System Enhancement"
- IMECS2018 Conference, IMECS2019 Conference, IAENG IJCS 2020 Journal

Yuan Ze University
2014 – 2018

BS, Electrical Engineering — GPA:3.77/4.0

- Data Structure, Computer Network, Cloud Computing

COMPETITIONS

Unmanned Store–MATLAB Deep Learning Competition, Accelerate the Power of AI 2019
Feb 2019

- Placed in top 1% by designing an auto recognition system for unmanned store with faster R-CNN.
- Improved accuracy to 68% by using Resnet-50, connected component for multi-object recognition with 6k images and 105 classes.

PROJECTS

Elevator Button Localization and Recognition
Python | C++ | OpenCV — Feb 2020

- Developed a self-calibration elevator button recognition system to enhance robot navigation.
- Optimized the auto localization algorithm accuracy to 95.8% by using edge projection, K-means, convolution, and NMS.
- Created a recognition algorithm based on CNN and glyph modelling, and reached 99.9% accuracy.
- Reduced the effect of illumination and reflection by edge enhancement, morphology calibration, and template matching.

Mysterious Missing Migrants Visualization
Javascript | HTML | CSS | D3 — Dec 2019

- Designed a web application to provide migrant casualty report by visualizing the degree of danger in different countries using d3 world map.
- Aggregated the relationship in 17k dataset including cause of death, gender, nationality, group size, and incident region by d3 interactive table.
- Visualized dead and missing amount with mouse hover on migration routes and countries.
- Emphasized the cause of death by different font size according to casualties in word cloud.

Recommendation System with Amazon Products
Java | Galago — Jan 2020

- Developed a ranking model based on reviews with CNN and attention network to promote products to users.
- Improved accuracy by 0.8% by combining local convolution with global self-attention for rating prediction.
- Enhanced the interpretability for the system to answer why certain items will be recommended by visualizing the attention score on reviews.

Co-reference Extraction for Entities
Python | nltk — Oct 2019

- Developed a coreference solution with semantic match and rule-based algorithm to extract same entities in documents.
- Improved accuracy by 2.38% in F1 score by removing pleonastic "it" pronoun, and reached 49% precision accuracy.
- Strengthened the connection between mentions that have syntactic relation by using dependency parsing information.