Yung-Hsu Yang

(+886) 980842592 | sy2es93104@gmail | https://royyang0714.github.io

EDUCATION

National Tsing Hua University   Sep. 2020 – Present
MS of Electrical Engineering   *advised by Prof. Min Sun*

National Tsing Hua University   Sep. 2016 – June 2020
BS of Electrical Engineering

PUBLICATIONS

Hou-Ning Hu, **Yung-Hsu Yang**, Tobias Fischer, Trevor Darrell, Fisher Yu, Min Sun, "Monocular Quasi-Dense 3D Object Tracking", ArXiv:2103.07351

RESEARCH EXPERIENCE

Deep Knowledge Tracing   July 2019 – Present
Tera Thinker Technology Inc.
- Implemented and lightened the DeepIRT model with PyTorch.
- Modified the model to work with powerful NLP embedding network to handle the real-world data.

Multi-speaker Automatic Speech Recognition (ASR) with Deep Learning   Sep. 2019 – June 2020
Academia Sinica, advised by Dr. Yu Tsao and Hung-Shin Lee   *Taipei, Taiwan*
- Implemented the deep clustering approach speech separation model with PyTorch.
- Analyzed the ASR results of the separated speech.

End-to-End Automatic Speech Recognition (ASR) with Deep Learning   Aug. 2019
Academia Sinica, advised by Dr. Yu Tsao and Hung-Shin Lee   *Taipei, Taiwan*
- Implemented end-to-end GMM-free ASR model with Kaldi.
- Modified and trained the e2e ASR model into Chinese version.

Speech Enhancement with Deep Learning   July 2019
Academia Sinica, advised by Dr. Yu Tsao   *Taipei, Taiwan*
- Implemented different speech enhancement models with Keras.
- Analyzed the results of Bi-LSTM, Conv-DeConv and VAE backbones.

3D Human Pose Estimation Deep Learning Model Optimization   July 2019 – Aug. 2019
Undergraduate Research
- Implemented 3D Human Pose Estimation model with PyTorch.
- Quantized the well-trained model and maintain the model performance with faster inference time and smaller size.

Natural Language Processing with Deep Learning   Sep. 2018 – June 2019
Undergraduate Research
- Studied the newest papers in NLP domain.
- Got familiar with NLTK toolkit and implemented toy models.

WORK EXPERIENCE

Back-end and Model Developer of AI Startup   July 2019 – Present
Tera Thinker Technology Inc.
- Designed SQL database schema and built it on Google Cloud SQL.
- Built Restful API under Django framework on Google Application Engine.
- Built Deep Knowledge Tracing Model services under Flask framework on Google Application Engine.

Teaching Assistant   Nov. 2020
NTHUEE Digital Signal Processing Laboratory   *Hsinchu, Taiwan*
- Designed courses for image edge detection and seam carving algorithm.

Quality Assurance Intern   Sep. 2019 – Dec. 2019
Umbo Computer Vision Inc.   *Taipei, Taiwan*
- Designed Test Plan and wrote python scripts for automatic testing.
- Participated in Scrum meeting and DevOps process.

Relevant Courses

Core Courses:
- Introduction to Machine Learning, Introduction to Intelligent Computing, System Theory (RL)
- Statistical Learning, Deep Learning, Deep Learning and NLP Research Methodologies
- Digital Signal Processing Laboratory, Natural Language Processing Laboratory

Other Courses:
- Introduction to Programming, Data Structures, Computer Architecture, Operating System
- Introduction to Computer Networks, Cloud Computing
- Logic Design Laboratory, Interaction Design (HCI)

Selected Projects

AI CUP 2020 Mango Image Recognition Challenge | *Python, PyTorch, Keras*　　　　　　June 2020
- Implemented DCGAN to generate more images as data augmentation with PyTorch.
- Trained 6 different classification models with Keras and used own written Adaboost to fuse the best result.
- Won the 2nd place in the class competition.

Multispeaker Text-To-Speech Synthesis (TTS) System | *Python, Tensorflow*　　　　　Jan. 2020
- Implemented and transfered the model pretrained on English into Chinese version with Tensorflow.
- Analyzed the effect of acoustic feature to model and improved the model performance.

Neural Machine Translation | *Python, Tensorflow*　　　　　　　　　　　　　　　　　Jan. 2020
- Implemented the NMT model with attention for English-French translation with Tensorflow.
- Successfully translated some unseen English sentences into French almost the same as Google translation.

Protein Secondary Structure Prediction with Deep Learning | *Python, Tensorflow*　　June 2019
- Implemented the seq2seq model to learn the correlation between protein sequence and its secondary structure.
- Achieved the performance of the SOTA at that time without any biological computation for the protein sequence.

Facial Feature Extraction and Application | *Python, C/C++, Arduino, Raspberry Pi, Azure*　Mar. 2019
- Used Azure API and Raspberry Pi to extract human facial feature.
- Used collected feature to work with Mediatek LinkIt 7688 Duo to control the light and music.

NTHUEE Camp Website | *PHP, Bootstrap, MySQL*　　　　　　　　　　　　　　　　　Aug. 2018
- Developed a web application with control platform.
- Website: https://eecamp.nthuee.org

Technical Skills

Computer Languages: Python, C/C++, Shell, PHP

Frameworks: PyTorch, Tensorflow, Keras, Django, Flask

Developer Tools: Git, Linux, Google Cloud Platform, Amazon Web Services

Hardware Developments: Verilog, RISC-V, Hspice (CAD tools), FPGA, Arduino, Raspberry Pi

Languages: Mandarin Chinese (native speaker), good command of English

Extra Curricular

Vice Director　　　　　　　　　　　　　　　　　　　　　　　　　　July 2018 – June 2019
Student Association of NTHU Electrical Engineering Department　　　　　　　　　*Hsinchu, Taiwan*
- Planned and held various activities for students in our department.
- Managed the finance of the association.

Director　　　　　　　　　　　　　　　　　　　　　　　　　　　　Aug. 2017 – July 2018
NTHUEE Camp　　　　　　　　　　　　　　　　　　　　　　　　　　　*Hsinchu, Taiwan*
- Organized the teams and planned for the whole week activities.
- Made decisions for the organizations and emergency.