Tsung-Shan Yang

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Education

University of Southern California (USC) **Aug 2022 - present**
Ph.D. in the department of Electrical Computer Engineering *California, USA*

National Taiwan University (NTU) **Sep 2019 - Sep 2021**
Master of Science in Graduate Institute of Communications Engineering *Taipei, Taiwan*
Major in Data Science and Smart Network
· GPA: 4.04 / 4.30

National Taiwan University (NTU) **Sep 2014 - Jun 2019**
Bachelor of Science degree in the Department of Chemistry *Taipei, Taiwan*
Bachelor of Science in Engineering degree in the Department of Electrical Engineering *Taipei, Taiwan*
· GPA: 3.81 / 4.30

Research / Professional Experiences

NTU - Machine learning and Estimation Theory Lab **Jul 2019 - Sep 2021**
M.S. student in Graduate Institute of Communications Engineering
Advisor: Prof. Pei-Yuan Wu
· Omnidirectional Image Encoding
· Propose a feature extraction method on panoramic images

NTU - Teaching Assistant of Machine Learning **2019 Fall & 2020 Fall**
M.S. student in Graduate Institute of Communications Engineering
Advisor: Prof. Pei-Yuan Wu
· Design assignment about theoretical analysis and deep learning projects
· Maintain the course website

NTU - Teaching Assistant of Data Structure **2020 Spring**
M.S. student in Graduate Institute of Communications Engineering
Advisor: Prof. Pei-Yuan Wu
· Design assignment about theoretical analysis and data structure implementation

NTU - Yuan-Chung Cheng's Research Group **Jun 2017 - Feb 2019**
Undergraduate Student in the Department of Chemistry
Advisor: Prof. Yuan-Chung Cheng
· 2D spectrum analysis about coupling excited molecules
· Show ability to conduct an interdisciplinary project about machine learning and spectroscopy

NTU - Teaching Assistant of General Chemistry **2018 Fall**
Undergraduate Student in Department of Chemistry
Advisor: Prof. Yuan-Chung Cheng
· Lead group discussion and provide hints on assignments
· Provide 2 hour TA class each week for over 300 students

Projects

refer to my GitHub: https://github.com/keevin60907

Privacy Preservation of Panorama Image **Aug 2019 - Sep 2021**
· Adversarial learning based on asymmetric kernel structure

Camera Calibration **Aug 2019**
· Computer Graphic projection of the coordinate
· Address the distortion of the different kinds of cameras

Multi-Peer iOS app design **Nov 2018**
· Project of 'Net and MultiMedia' course in NTU
· React-Native-based app

Unsupervised Spectrum Analysis **Aug 2018**
· Developed algorithms for 2D molecular excited spectrum
· Machine learning project

Publications

Master Thesis **2021**
· **Omnidirectional Image Encoding**
· Propose an encoding based on great circle distance to revise the convolution output of omnidirectional images

IEEE Computer Vision and Pattern Recognition (CVPR) **2020**
Workshop paper
· **NTIRE 2020 Challenge on NonHomogeneous Dehazing**
· Propose an attention refinement block of the deep learning model

The 31st IPPR Conference on Computer Vision, Graphic and Image Processing **2018**
National Conference about Computer Vision *Hualien, Taiwan*
· **Few Shot Learning With Difficult Setting**
· Analyze the different approaches to few-shot learning

IEEE 36th VSLI Test Symposium (VTS) **2018**
International Conference about very-large-scale integration testing and symposium
· **IR Drop Prediction of ECO-Revised Circuits Using Machine Learning**
· Reduce 30X simulation time through deep learning

Awards / Scholarship

Taiwan USC scholarship **2022**
Ministry of Education in Taiwan
· 4-year full funding

Viterbi School of Engineering / Graduate School Fellowship **2022**
University of Southern California
· 1-year fellowship for Ph.D. student

Presidential Award **2014**
Department of Chemistry at NTU
· Awarded to the top 5% of students in the class
· Twice for the award (2014 fall and 2015 spring)

Gold Medal in 8th International Junior Science Olympiad (IJSO) **2011**
International individual and team competition in the Natural Sciences

Skills

· ***Software**: Python / C++ / HTML / MATLAB / C / JavaScript*

· **Strength**: Computer Vision / Deep Learning / Algorithm Design / Physical Chemistry / Quantum Chemistry

· **Languages**: English as Second Language / Native Mandarin Speaker

· **Tools:** PyTorch / OpenCV / Tensorflow / Keras / Scikit-Learn