Tsung-Shan (Kevin) Yang

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Education

University of Southern California (USC) **Aug 2022 - Present**
Ph.D. student *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*

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

Selected Publications

1. GHOI: A Green Human-Object-Interaction Detector
Tsung-Shan Yang, Yun-Cheng Wang, Chengwei Wei, C.-C. Jay Kuo
*IEEE International Conference on Multimedia Information Processing and Retrieval (**MIPR**), 2024*
· Green Learning solution for HOI detection, which reduces the number of FLOPs to 1/15,800 compared to SOTAs

2. BPQA: A Blind Point Cloud Quality Assessment Method
Qingyang Zhou, Aolin Feng, **Tsung-Shan Yang**, Shan Liu, C.-C. Jay Kuo
*IEEE International Conference on Image Processing Challenges and Workshops (**ICIPCW**), 2023*
· Achieve the second-best score on the challenge with an interpretable and small learning scheme

3. Viewing Bias Matters in 360 Videos Visual Saliency Prediction
Peng-Wen Chen, **Tsung-Shan Yang**, Gi-Luen Huang, Chia-Wen Huang, Yu-Chieh Chao, Chien-Hung Lu, Pei-Yuan Wu
IEEE Access Journal paper, 2023
· Statistically analyze the human bias in saliency maps and generalize the spherical kernel to time series data

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

5. Few Shot Learning With Difficult Settings
Yen-Ting Liu, Guan-Shiuan Kuo, **Tsung-Shan Yang**, Po-Chun Hsu, Chiou-Shann Fuh
*The 31st IPPR Conference on Computer Vision, Graphic and Image Processing (**CVGIP**), 2018*
· Analyze the different approaches to few-shot learning

6. IR Drop Prediction of ECO-Revised Circuits Using Machine Learning
*Shih-Yao Lin, Yen-Chun Fang, Yu-Ching Li, Yu-Cheng Liu, **Tsung-Shan Yang**, Shang-Chien Lin, Chien-Mo Li, Eric Jia-Wei Fang*
*IEEE International Conference about Large-scale Integration Testing and Symposium (**VTS**), 2018*
· Reduce 30X simulation time through deep learning

Awards / Scholarship

2022 Taiwan USC Scholarship *Ministry of Education in Taiwan*
· four-year full funding

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

2014 Fall & 2015 Spring Dean's List *Department of Chemistry at National Taiwan University*

2011 Gold Medal in the 8th International Junior Science Olympiad (IJSO)

Research Experience

USC - MediaComm Lab **Aug 2022 - Present**
Ph.D. student in the Department of Electrical Engineering
Advisor: Prof. **C.-C. Jay Kuo**
· Green Learning in Human-Object Interaction Detection
· Green Learning in Multimodal Alignment

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

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

Teaching Experience

USC - Systems for Machine Learning **2023 Spring**
· Introduce the hardware of TPUs and GPUs
· Design the project about finetuning LLMs

NTU - Machine Learning **2019 Fall & 2020 Fall**
· Design assignments about theoretical analysis and deep learning projects
· Maintain the course website

NTU - Data Structure **2020 Spring**
· Design assignments about theoretical analysis and data structure implementation

NTU - General Chemistry **2018 Fall**
· Lead group discussions and provide hints on assignments
· Provide two-hour TA classes each week for over 300 students

Skills

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

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

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

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

· **Projects can be viewed on my GitHub**: https://github.com/keevin60907