

Tsung-Shan (Kevin) Yang

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Education

University of Southern California (USC)	Aug 2022 - Present
<i>Ph.D. student in the Department of Electrical Computer Engineering</i>	California, USA
Advisor: Prof. C.-C. Jay Kuo	
National Taiwan University (NTU)	Sep 2019 - Sep 2021
<i>Master of Science in Graduate Institute of Communications Engineering</i>	Taipei, Taiwan
National Taiwan University (NTU)	Sep 2014 - Jun 2019
<i>Bachelor of Science in the Department of Chemistry</i>	Taipei, Taiwan
<i>Bachelor of Science in Engineering degree in the Department of Electrical Engineering</i>	Taipei, Taiwan

Selected Publications

- GMA: Green Multi-Modal Alignment for Image-Text Retrieval**
Tsung-Shan Yang, Yun-Cheng Wang, Chengwei Wei, Suyu You, C.-C. Jay Kuo
Asia Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC), 2024
· Explainable alignment for features from two separately trained models in different modalities (image and text)
- Efficient Human-Object-Interaction Detection via Interaction Label Coding and Conditional Decision**
Tsung-Shan Yang, Yun-Cheng Wang, Chengwei Wei, Suyu You, C.-C. Jay Kuo
arXiv preprint arXiv:2408.07018, 2024
· Explainable scheme for two-stage Human-Object Interaction Detection
- 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
- 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
- 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
- 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
- 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
- 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

2024 IEEE MIPR Student Grant *IEEE TCMC*
2022 Taiwan USC Scholarship *Ministry of Education in Taiwan*
2022 Viterbi School of Engineering / Graduate School Fellowship *University of Southern California*
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>