Tsung-Shan (Kevin) Yang

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Education

University of Southern California (USC) — Aug 2022 – Present
Ph.D. candidate in Electrical and Computer Engineering
- **Advisor**: Prof. **C-C. Jay Kuo**
- **Thesis:** Interpretable and Efficient Multi-Modal Data Interplay: Algorithms and Applications

National Taiwan University (NTU) M.S. in Electrical Engineering — Sep 2019 – Jun 2021
National Taiwan University (NTU) B.S. in Electrical Engineering and Chemistry — Sep 2014 – Jun 2019

Experience

Machine Learning Engineer, Tiktok Inc. – San Jose, CA — May 2025 – Aug 2025
- Video Content Understanding

Selected Publications

GMA: Green Multi-Modal Alignment for Image-Text Retrieval

Tsung-Shan Yang, Yun-Cheng Wang, Chengwei Wei, Suya 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, Suya You, C.-C. Jay Kuo
*Computer Vision and Image Understanding (**CVIU**), 2025*
- Explainable scheme for two-stage Human-Object Interaction 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, 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

*Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops. (**CVPRW**) 2020.*
- Propose an attention refinement block of the deep learning model

Awards/Scholarships

2024 IEEE MIPR Student Grant	*IEEE TCMC*
2022 Taiwan - USC Scholarship	*Ministry of Education in Taiwan*
2022 Viterbi School of Engineering / Graduate School Fellowship	*Univserity of Southern California*
2014 Fall & 2015 Spring Dean's List	*National Taiwan University*
2011 Gold Medal	*International Junior Science Olympiad (IJSO)*

Teaching Experience

Systems for Machine Learning, University of Southern California   2024 Spring, 2025 Spring
- Introduce the hardware of TPUs and GPUs
- Design the project about finetuning LLMs

Introduction for Computer Programming, University of Southern California   2024 Fall
- Lead weekly hand-on labs
- Introduce good coding styles and algorithms

Machine Learning, National Taiwan University   2019 Fall, 2020 Fall
- Design assignments about theoretical analysis and deep learning projects
- Maintain the course website

Data Structure, National Taiwan University   2020 Spring
- Design assignments about theoretical analysis and data structure implementation

General Chemistry, National Taiwan University   2018 Fall
- Lead group discussions and provide hints on assignments
- Provide two-hour TA classes each week for over 300 students

Technologies

Languages: Python, C++, C, HTML, MATLAB

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