Tsung-Shan (Kevin) Yang

Los Angeles, CA | tsungshan.yang@gmail.com | 213-519-1489 | keevin60907.github.io/

linkedin.com/in/tsung-shan-yang | github.com/keevin60907

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

Experience

Machine Learning Engineer, Tiktok Inc. – San Jose, CA — May 2025 – Present
- Developed an efficient AI-generated video detection model using lightweight architectures
- Achieved state-of-the-art performance with 3% of model parameters and a 98% reduction in inference time

Selected Publications

[J1] 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): 104390.
- Reduce computational cost by 15,800× fewer FLOPs compared to state-of-the-art methods

[J2] Image-Text Retrieval via Green Explainable Multi-modal Alignment (GEMMA)
Tsung-Shan Yang, Yun-Cheng Wang, Chengwei Wei, Suya You, C.-C. Jay Kuo
APSIPA Transactions on Signal and Information Processing(2025)
- Developed an interpretable alignment framework for image and text encoders with 3% of trainable parameters

[C1] 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
- Develop an interpretable learning framework with minimal computational overhead

[J3] 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
- Analyzed human bias in saliency maps and extended spherical kernels to time-series data

[C2] 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*

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 LLM inference, such as LoRA and KV-cache

Introduction for 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