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. GMA: Green Multi-Modal Alignment for Image-Text Retrieval (Under Review)
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)

2. 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

3. 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

4. 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

5. 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

6. 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

7. 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