Susan Liang

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Second year Ph.D. candidate, Computer Science
Looking for Summer 2024 Internship from June to August (3 Months)

Education

University of Rochester NY, USA
Ph.D. of Computer Science *Sept. 2022 – May 2027 (Expected)*
- Advisor: Prof. Chenliang Xu
- GPA: 4/4

University of Chinese Academy of Sciences Beijing, China
Bachelor of Computer Science *Sept. 2018 – Jul. 2022*
- Advisor: Prof. Shiguang Shan
- GPA: 3.90/4, Rank: 4/104

Research Interests

- Audio-Visual Understanding and Generation
- Implicit Neural Fields
- Multi-Modal Learning
- Trustworthy AI

Publication

Dream Your Sounding Object Thousand Ways: Language-Guided Audio-Visual Personalization
Susan Liang, Chao Huang, Yapeng Tian, Anurag Kumar, Chenliang Xu
(In submission)

Revisit Audio-Visual Adversarial Robustness from Temporal and Modality Correlation Perspectives
Zeliang Zhang*, **Susan Liang***, Daiki Shimada*, Chenliang Xu
(In submission)

Video Understanding with Large Language Models: A Survey
Yunlong Tang*, Jing Bi*, Siting Xu*, Luchuan Song, **Susan Liang**, Teng Wang, Daoan Zhang, Jie An, Jingyang Lin, Rongyi Zhu, Ali Vosoughi, Chao Huang, Zeliang Zhang, Feng Zheng, Jianguo Zhang, Ping Luo, Jiebo Luo, Chenliang Xu
arXiv preprint, 2023.

AV-NeRF: Learning Neural Fields for Real-World Audio-Visual Scene Synthesis
Susan Liang, Chao Huang, Yapeng Tian, Anurag Kumar, Chenliang Xu
Conference on Neural Information Processing Systems (NeurIPS), Dec. 2023

Neural Acoustic Context Field: Rendering Realistic Room Impulse Response With Neural Fields
Susan Liang, Chao Huang, Yapeng Tian, Anurag Kumar, Chenliang Xu
International Conference on Computer Vision Workshops (ICCVW), Oct. 2023

DAVIS: High-Quality Audio-Visual Separation with Generative Diffusion Models
Chao Huang, **Susan Liang**, Yapeng Tian, Anurag Kumar, Chenliang Xu
arXiv preprint, 2023.

UNICON+: ICTCAS-UCAS Submission to the AVA-ActiveSpeaker Task at ActivityNet Challenge 2022
Yuanhang Zhang*, **Susan Liang***, Shuang Yang, Xiao Liu, Zhongqin Wu, Shiguang Shan
IEEE Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), Jun. 2022

UniCon: Unified Context Network for Robust Active Speaker Detection
Yuanhang Zhang*, **Susan Liang***, Shuang Yang, Xiao Liu, Zhongqin Wu, Shiguang Shan, Xilin Chen
ACM International Conference on Multimedia (ACM MM), Oct. 2021 **(Oral)**

ICTCAS-UCAS-TAL Submission to the AVA-ActiveSpeaker Task at ActivityNet Challenge 2021
Yuanhang Zhang*, **Susan Liang***, Shuang Yang, Xiao Liu, Zhongqin Wu, Shiguang Shan
IEEE Conference on Computer Vision and Pattern Recognition Workshops (CVPRW), Jun. 2021

* indicates equal contribution.

Research Experience

Semantic Correspondence Sept. 2021 – Mar. 2022

Vision and Learning Lab, ***University of California, Merced***

Advisors: Prof. Ming-Hsuan Yang and Dr. Taihong Xiao

- Proposed a self-supervised deep learning approach for semantic correspondence.
- Exploited contrastive learning and cycle consistency to learn discriminative and consistent features.

Vector Graphics Learning and Generation Jun. 2021 – Aug. 2021

Institute for AI Industry Research, ***Tsinghua University***

Advisors: Dr. Yizhi Wang and Dr. Hao Xu

- Developed an encoder-decoder model to convert raster images to vector graphics.
- Used a differentiable rasterization pipeline to enable supervision by raster images.

Active Speaker Detection Oct. 2020 – Apr. 2021

VIPL, Institute of Computing Technology, ***Chinese Academy of Sciences***

Advisors: Prof. Shiguang Shan and Dr. Shuang Yang

- Developed an audio-visual multi-modal fusion scheme to detect when each visible speaker in the video is speaking.
- Proposed an permutation-equivariant layer with the capability of processing all speakers in the scene simultaneously.
- Exploited the skew-symmetry of inter-speaker relations which not only has reasonable interpretation but also reduces memory usage and FLOPS.
- Conducted extensive experiments on multiple datasets (AVA-ActiveSpeaker, Columbia and RealVAD) with outstanding performance.

Face Deformation Field Generation and Lip Reading Feb. 2020 – Sept. 2020

VIPL, Institute of Computing Technology, ***Chinese Academy of Sciences***

Advisors: Prof. Shiguang Shan and Dr. Shuang Yang

- Developed an encoder-decoder model to generate face deformation field (face-specific optical flow) which features the face motion.
- Trained the deformation field in a self-supervised manner with no annotations.
- Combined deformation field and gray-scale face images to recognize visual speech.

Awards

UCAS Outstanding Thesis Award	Jun. 2022
ActivityNet CVPR 2022 Workshop AVA Active Speaker Detection Challenge First Place	Jun. 2022
ActivityNet CVPR 2021 Workshop AVA Active Speaker Detection Challenge First Place	Jun. 2021
UCAS Overseas Graduate Studies Fellowship	Aug. 2021
UCAS Academy Fellowship	Sept. 2019 - Jun. 2021

Technical Skills

Languages: Proficient in Python and C; Familiar with LaTeX
Frameworks: Proficient in PyTorch; Familiar with TensorFlow, PyTorch-Lightning, Diffusers, and nerfstudio
Developer Tools: Git, Docker, and Vim

Academic Serve

Reviewer: AAAI 2024, CVPR 2024