Kun Su

Ph.D. Student In NeuroAI Lab, University Of Washington

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Research Interests

Audio-Visual Learning: Latent representation and disentanglement of video/audio (music), transformation and generation from *video/audio* (music) to *audio* (music)/video.
Computer Vision: Human and animal 2D/3D pose, motion prediction, action recognition, temporal segmentation.
Deep Learning: Unsupervised learning, self-supervised learning, interpretable embeddings, generative models, incremental learning, meta learning.

Education

Apr 2019 - Current
Ph.D.: Electrical & Computer Engineering
University Of Washington - Seattle, WA
1. Current GPA: 3.90
2. Passed Quals: Fall 2020
3. Expected Graduation Date: Winter/Spring 2023

Sep 2017 - Mar 2019
Master of Science: Electrical & Computer Engineering
University Of Washington - Seattle, WA
1. Graduated with 3.92 GPA

Aug 2013 - May 2017
Bachelor of Science: Electrical Engineering
Rensselaer Polytechnic Institute - Troy, NY
1. Graduated magna cum laude
2. Graduated with 3.76 GPA

Publications

Conferences (CVPR, NeurIPS, ACC, URTC)

1. **Su, Kun**, Xiulong Liu, and Eli Shlizerman. "*Audeo: Audio generation for a silent performance video*." ***Advances in Neural Information Processing Systems*** **(NeurIPS)** 33 (2020).

2. **Su, Kun**, Xiulong Liu, and Eli Shlizerman. "*Predict & cluster: Unsupervised skeleton based action recognition*." ***Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*** **(CVPR)**. 2020.

3. You, Jie, Yufei Zhang, Mingchen Li, **Kun Su**, Fumin Zhang, and Wencen Wu. "*Cooperative parameter*

identification of advection-diffusion processes using a mobile sensor network." In *2017* ***American Control Conference (ACC)***, pp. 3230-3236. IEEE, 2017.
4. Li, M., **Su, K.**, Zhang, Y., You, J. and Wu, W., 2016, November. *Experimental validation of diffusion coefficient identification using a multi-robot system*. In *2016* ***IEEE MIT Undergraduate Research Technology Conference (URTC)*** (pp. 1-4). IEEE.

Journal

5. **Su, Kun**, and Eli Shlizerman. "*Clustering and Recognition of Spatiotemporal Features through Interpretable Embedding of Sequence to Sequence Recurrent Neural Networks*." ***Frontiers in Artificial Intelligence*** 3 (2020): 70.

6. Wu, W., You, J., Zhang, Y., Li, M. and **Su, K.**, 2020. *Parameter Identification of Spatial–Temporal Varying Processes by a Multi-Robot System in Realistic Diffusion Fields*. ***Robotica***, pp.1-20.

Workshops

7. **Su, Kun**, and Eli Shlizerman. "*Dimension reduction approach for interpretability of sequence to sequence recurrent neural networks*." Understanding and Improving Generalization in Deep Learning, **ICML 2019 Workshop**.

Submitted

8. **Su, Kun**, Xiulong Liu, and Eli Shlizerman. "*How Does it Sound*?" (2021)

9. **Su, Kun**, Xiulong Liu, and Eli Shlizerman. "*Multi-instrumentalist Net: Unsupervised Generation of Music from Body Movements*." (2020)

10. Zheng, Yang, Jinlin Xiang, **Kun Su**, and Eli Shlizerman. "*BI-MAML: Balanced Incremental Approach for Meta Learning*." *arXiv preprint arXiv:2006.07412* (2020).

Media Coverage

1. University of Washington ECE News (Predict & Cluser)
2. University of Washington News (Audeo)
3. Tech Crunch (Audeo)

Teaching

Teaching Assistant
1. Practical Introduction to Neural Networks **(Graduate TA)**, ECE 596, University of Washington, 2019
2. Computer Components and Operations **(Undergraduate TA)**, ECSE 2610, Rensselaer Polytechnic Institute, 2016

Peer-Review

Reviewer (workshop): Real Neurons & Hidden Units at NeurIPS 2019.

Internships

Audio Research Intern, Adobe Research **(**Mentor: Xue Bai**)** June – Sep 2021

1. Learning speech style from talking head videos.

Robotic Simulation Intern, SUNPRO Mechanical & Electrical Engineering Co., Ltd. June-August 2016

1. Design a visual system to evaluate the welded components in the Nissan assembly line.
2. Design an educational base for beginners to industrial robots.

Skills

Comfortable with programming and deep learning development

Deep Learning Frameworks: PyTorch, TensorFlow
Python Libraries: NumPy, scikit-learn, OpenCV, Librosa, pretty-midi
Other Tools: Linux Shell Script, Matlab, C/C++, LabView
Languages: English, Chinese, Cantonese