Yanan Sui

Assistant Professor
Tsinghua University
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RESEARCH APPOINTMENTS

Assistant Professor　　　　　　　　　　　　　　　　　　　　　　　2019 - now
Tsinghua University
> School of Aerospace Engineering
> National Engineering Lab for Neuromodulation

Postdoctoral Researcher　　　　　　　　　　　　　　　　　　　　2018 - 2019
Stanford University
> Supervisor: Prof. Fei-Fei Li
> Research Topics: Machine learning theory and algorithms, computer vision techniques, applications in healthcare and robotics.

Postdoctoral Researcher　　　　　　　　　　　　　　　　　　　　2016 - 2018
California Institute of Technology
> Supervisors: Prof. Joel Burdick, Prof. Yisong Yue
> Research Topics: Machine learning theory and algorithms and their applications in clinical therapies and robotics.

Research Assistant　　　　　　　　　　　　　　　　　　　　　　　2010 - 2011
Institute of Neuroscience, Chinese Academy of Sciences
> Supervisors: Prof. Mu-ming Poo, Prof. Yang Dan
> Research Topics: Neural plasticity of cortex on the system level.

EDUCATION

Ph.D. Computation and Neural Systems　　　　　　　　　　　　　2011 - 2016
California Institute of Technology
> Minor in Applied and Computational Mathematics
> Research Committee: Joel Burdick (Supervisor), Richard Murray, Pietro Perona, Yisong Yue

B.E. Biomedical Engineering　　　　　　　　　　　　　　　　　　2006 - 2010
Tsinghua University

RESEARCH INTERESTS

AI-Assisted Healthcare, Machine Learning, Neural Engineering, Robotics

ACADEMIC SERVICE

Program Chair:
Deep Brain Stimulation Initiative Workshop　　　　　　　　　　　　　2018

Area Chair/Associate Editor:
International Conference on Learning Representations (ICLR)
Neural Information Processing Systems (NeurIPS)
Journal of Biomedical Engineering (in Chinese)

Program Committee/Reviewer:
AAAI, AISTATS, CVPR, ECCV, ICCV, ICLR, ICML, ICRA, IJCAI, IROS, NIPS/NeurIPS, UAI, etc.
IEEE Journal of Biomedical and Health Informatics
IEEE Journal of Translational Engineering in Health and Medicine
Journal of Machine Learning Research
Machine Learning
Neural Computation

TEACHING AND MENTORSHIP

Teaching Assistant — 2009
Contemporary Methods in System Neuroscience Research (Tsinghua University)

Mentoring Undergrad and Graduate Research Projects — 2015 - 2018
Computation and Mathematical Sciences (California Institute of Technology)

Mentoring Graduate Research Projects — 2018 - 2019
Computer Science (Stanford University)

Instructor — 2018 - 2019
AI-Assisted Health Care (Stanford University)

Instructor — 2019 - 2020
AI Innovation and Entrepreneurship (Tsinghua University)

Instructor — 2020 - 2021
Human Factors and Artificial Intelligence (Tsinghua University)

PUBLICATIONS

[1] Dong Wang, Liang She, **Sui, Yanan**, Xiao-bing Yuan, Yunqing Wen, and Mu-ming Poo. Forward transport of proteins in the plasma membrane of migrating cerebellar granule cells. *Proceedings of the National Academy of Sciences*, 109(51):E3558–E3567, 2012.

[2] Jing Zhou, Yunqing Wen, Liang She, **Sui, Yanan**, Lu Liu, Linda J Richards, and Mu-ming Poo. Axon position within the corpus callosum determines contralateral cortical projection. *Proceedings of the National Academy of Sciences*, 110(29):E2714–E2723, 2013.

[3] Feng Wang, Li Zuo, Bo Hong, Dongyi Han, Ethan M Range, Lingyun Zhao, **Sui, Yanan**, Weiwei Guo, and Liangfa Liu. Tonotopic reorganization and spontaneous firing in inferior colliculus during both short and long recovery periods after noise overexposure. *Journal of Biomedical Science*, 20(1):91, 2013.

[4] **Sui, Yanan** and Joel W. Burdick. Clinical online recommendation with subgroup rank feedback. In *ACM Conference on Recommender Systems (RecSys)*, 2014.

[5] **Sui, Yanan**, Alkis Gotovos, Joel W. Burdick, and Andreas Krause. Safe exploration for optimization with gaussian processes. In *International Conference on Machine Learning (ICML)*, 2015.

[6] **Sui, Yanan**, Vincent Zhuang, Joel w. Burdick, and Yisong Yue. Multi-dueling bandits with dependent arms. In *Conference on Uncertainty in Artificial Intelligence (UAI)*, 2017.

[7] **Sui, Yanan**, Yisong Yue, and Joel W. Burdick. Correlational dueling bandits with application to clinical treatment in large decision spaces. In *International Joint Conference on Artificial Intelligence (IJCAI)*, 2017.

[8] **Sui, Yanan**, Kun ho Kim, and Joel W. Burdick. Quantifying performance of bipedal standing with multi-channel emg. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2017.

[9] Akifumi Wachi, **Sui, Yanan**, Yisong Yue, and Masahiro Ono. Safe exploration and optimization of constrained mdps using gaussian processes. In *AAAI Conference on Artificial Intelligence (AAAI)*, 2018.

[10] **Sui, Yanan**, Vincent Zhuang, Joel W. Burdick, and Yisong Yue. Stagewise safe bayesian optimization with gaussian processes. In *International Conference on Machine Learning (ICML)*, 2018.

[11] **Sui, Yanan**, Masrour Zoghi, Katja Hofmann, and Yisong Yue. Advancements in dueling bandits. In *International Joint Conference on Artificial Intelligence (IJCAI)*, 2018.

[12] Richard Cheng, **Sui, Yanan**, Dimitry Sayenko, and Joel W. Burdick. On muscle activation for improving robotic rehabilitation after spinal cord injury. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2018.

[13] Yue Chen, Chen Gong, Hongwei Hao, Yi Guo, Shujun Xu, Guoping Yin, Xin Cao, Yuhuan Zhang, Jingying Ye, Hesheng Liu, Jianguo Zhang, **Sui, Yanan***, and Luming Li*. Automatic sleep stage classification based on subthalamic local field potentials. *IEEE Trans on Neural Systems and Rehabilitation Engineering*, (* corresponding authors), 2019.

[14] Chien-Yi Chang, De-An Huang, **Sui, Yanan**, Li Fei-Fei, and Juan Carlos Niebles. D^3tw: Discriminative differentiable dynamic time warping for weakly supervised action alignment and segmentation. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019.

[15] Richard Cheng, **Sui, Yanan**, Dimitry Sayenko, and Joel W. Burdick. Motor control after human sci through activation of muscle synergies under spinal cord stimulation. *IEEE Trans on Neural Systems and Rehabilitation Engineering*, 2019.

[16] Bingquan Zhu, Hao Fang, **Sui, Yanan**, and Luming Li. Learning the critical features for paraplegic standing via epidural stimulation. *AAAI/ACM Conference on Artificial Intelligence, Ethics, and Society (AIES)*, 2020.

[17] Maegan Tucker, Ellen Novoseller, Claudia Kann, **Sui, Yanan**, Yisong Yue, Joel W. Burdick, and Aaron D. Ames. Preference-based learning for exoskeleton gait optimization. *International Conference on Robotics and Automation (ICRA)*, 2020. **Best Conference Paper Award & Best Paper Award on Human-Robot Interaction**.

[18] Ellen Novoseller, Yibing Wei, **Sui, Yanan**, Joel W. Burdick, and Yisong Yue. Dueling posterior sampling for preference-based reinforcement learning. In *Conference on Uncertainty in Artificial Intelligence (UAI)*, 2020.

[19] Akifumi Wachi and **Sui, Yanan**. Safe reinforcement learning in constrained markov decision processes. In *International Conference on Machine Learning (ICML)*, 2020.