

# Yanan Sui

Assistant Professor  
Tsinghua University  
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## RESEARCH APPOINTMENTS

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- 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

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- 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

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

## ACADEMIC SERVICE

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- Program Chair:**  
Deep Brain Stimulation Initiative Workshop 2018

**Area Chair/Associate Editor:**

Journal of Biomedical Engineering (in Chinese)  
Neural Information Processing Systems (NeurIPS)

**Program Committee/Reviewer:**

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

**TEACHING AND MENTORSHIP**

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<b>Teaching Assistant</b>	2009
<i>Contemporary Methods in System Neuroscience Research (Tsinghua University)</i>	
<b>Mentoring Undergrad and Graduate Research Projects</b>	2015 - 2018
<i>Computation and Mathematical Sciences (California Institute of Technology)</i>	
<b>Mentoring Graduate Research Projects</b>	2018 - 2019
<i>Computer Science (Stanford University)</i>	
<b>Instructor</b>	2018 - 2019
<i>CS 337, AI-Assisted Health Care (Stanford University)</i>	
<b>Instructor</b>	2019 - 2020
<i>AI Innovation and Entrepreneurship (Tsinghua University)</i>	

**PUBLICATIONS**

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- [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 Nieves. D<sup>3</sup>tw: 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.