Wenya Liu

Postdoctoral researcher
F216, Health Technology House
Department of Neuroscience and Biomedical Engineering
Aalto University, Espoo, Finland

Phone: +358 465372765
Email: wenyaliu0912@foxmail.com
Website: wenya-liu.github.io

Personal

Female, born in 1991, Chinese citizen.

Language

Native Chinese, proficient English

Programming

Skilled Matlab, basic Python

Education

2017.08∼2021.11, Ph.D. Mathematical Information Technology, Faculty of Information Technology, University of Jyväskylä, Finland.
Supervisor: Prof. Timo Hämäläinen, Prof. Fengyu Cong, Prof. Tapani Ristaniemi

2014.09∼2017.06, M.S. Control Theory and Control Engineering, Faculty of Electronic Information and Electrical Engineering, Dalian University of Technology, China.
Supervisor: Assoc Prof. Qi Li.

2010.09∼2014.06, B.S. Automation, Information Science and Technology, Dalian Maritime University, Dalian, China.

Research Interests

My research interests include multi-modal data mining, multiway analysis of brain imaging data, dynamic brain networks, and naturalistic paradigms. I am currently focusing on the altered functional connectivity in major depression under resting states and naturalistic task conditions. I would like to apply the coupled tensor decomposition model to explore the dysconnectivity of oscillatory brain networks in psychiatric disorders. I am also interested in developing advanced methods to reveal the dynamics of task-related brain networks and individual differences of brain networks in psychiatric disorders.

Publications

Papers as the first author

Wenya Liu, Chi Zhang, Xiaoyu Wang, Jing Xu, Yi Chang, Tapani Ristaniemi and Fengyu Cong. Functional connectivity of major depression disorder using ongoing EEG during music perception. *Clinical Neurophysiology*, 2020, 131(10): 2413-2422.

Wenya Liu, Xiulin Wang, Jing Xu, Yi Chang, Timo Hämäläinen and Fengyu Cong. Identifying Oscillatory Hyperconnectivity and Hypoconnectivity networks in Major Depression Using Coupled Tensor

Decomposition. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 2021, 29, 1895-1904.

Wenya Liu, Xiulin Wang, Tapani Ristaniemi and Fengyu Cong. Identifying Task-Based Dynamic Functional Connectivity Using Tensor Decomposition. *27th International Conference on Neural Information Processing (ICONIP)*, Springer, Cham, 2020: 361-369.

Wenya Liu, Xiulin Wang, Timo Hämäläinen and Fengyu Cong. Alpha Band Dysconnectivity Networks in Major Depression during Resting State. *29th European Signal Processing Conference (EUSIPCO)**(accepted, lecture)***.

Papers as a co-author

Xiulin Wang, **Wenya Liu**, Tapani Ristaniemi and Fengyu Cong. Group Analysis of Ongoing EEG Data Based on Fast Double-Coupled Nonnegative Tensor Decomposition. *Journal of Neuroscience Methods*, 2020, 330, pp.108502.

Xiulin Wang, **Wenya Liu**, Jing Xu, Yi Chang, Qing Zhang, Jianlin Wu and Fengyu Cong. Shared and Unshared Feature Extraction in Major Depression during Music Listening using Constrained Tensor Factorization. ***(accepted)***

Xiulin Wang, **Wenya Liu**, Fengyu Cong and Tapani Ristaniemi. Group Nonnegative Matrix Factorization with Sparse Regularization in Multi-set Data. *28th European Signal Processing Conference (EUSIPCO)*, 2020: 2125-2129.

Xiaoshuang Wang, Xiulin Wang, **Wenya Liu**, Zheng Chang, Tommi Kärkkäinen and Fengyu Cong. One dimensional convolutional neural networks for seizure onset detection using long-term scalp and intracranial EEG. *Neurocomputing*, 2021, 459, 212-222.

Chi Zhang, Fengyu Cong, Tuomo Kujala, **Wenya Liu**, Jia Liu, Tiina Parviainen and Tapani Ristaniemi. Network entropy for the sequence analysis of functional connectivity graphs of the brain. *Entropy*, 2018, 20(5): 311.

Papers under review

Wenya Liu, Xiulin Wang, Timo Hämäläinen and Fengyu Cong. Dysconnectivity of oscillatory Networks in Major Depression during Resting State. ***(submitted to IEEE Transactions on Biomedical Engineering)***

Lili Tian, Hongjun Chen, Pyry Petteri Heikkinen, **Wenya Liu** and Tiina Parviainen. Temporal dynamics of motor and language areas reveal the compensatory role of the motor cortex in second language processing. ***(submitted)***

Academic activities

Computational Psychiatry Course Zurich 2021, virtual. September 13-18, 2021.

Brain and Language Virtual Conference & Methods Workshop 2021, virtual. August 24-27, 2021.

The 29th European Signal Processing Conference, EUSIPCO 2021, virtual. August 23-27, 2021.

1st International Conference on Social Neuroscience in Ecologically Valid Conditions, virtual. June 21-23, 2021.

The Brain Connectivity Workshop, BCW 2021, virtual. May 25-28, 2021.

The 27th International Conference on Neural Information Processing (ICONIP), Virtual Bangkok, Thailand, November 18-22, 2020.

China Biomedical Engineering Conference (BME2020) , Jinan, China, Nov 14-16, 2020. Oral.

The MESIO UPC-UB Summer School, July 2-6, 2018, Barcelona, Spain.

The 8th Annual Research Seminar of CIBR, December 11, 2020, Jyväskylä, Finland

The 7th Annual Research Seminar of CIBR, December 11, 2019. Jyväskylä, Finland.

The 6th Annual Research Seminar of CIBR, December 13, 2018, Jyväskylä, Finland.

MEG Nord 2019, May 8-10, 2019, Jyväskylä, Finland.

AI Health days-Seminar on Artificial Intelligence and Healthcare, January 16, 2019, Jyväskylä, Finland.

The 28th Jyväskylä Summer School, August 6-17, 2018, Jyväskylä, Finland.

Research funding

China Government Scholarship, from China Scholarship Council, 2017.10∼2021.09

Grants from University of Jyväskylä, 2021.10∼2021.12

Service

AD-HOC Reviewer

IEEE Transactions on Intelligent Transportation Systems

Artificial Intelligence In Medicine

Biomedical Signal Processing and Control