Wen Jin

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EDUCATION

Shanghai Jiao Tong University Sep. 2017 – Mar. 2020 (Expected)
M.E. in Biomedical Engineering, GPA: **3.87/4.0**, Rank: **2/86**

Shanghai Jiao Tong University Sep. 2013 – Jul. 2017
B.E. in Biomedical Engineering (with honor), GPA: **86.5/100**, Rank: **2/45**

University of Illinois at Urbana-Champaign Jul. 2019 – Jul. 2020 (Expected)
Visiting scholar, Department of Electrical and Computer Engineering

Cold Spring Harbor Asia Jul. 2019
Computational and Cognitive Neuroscience Summer School

RESEARCH INTEREST

My research interest lies in how we can improve Magnetic Resonance Imaging (MRI) to understand individual brain. More specifically, I am insterested in image processing and image analysis.

RESEARCH EXPERIENCE

Visiting scholar, Liang's Group Jul. 2019 – Present
Supervised by *Prof. Zhi-Pei Liang, ECE, University of Illinois at Urbana-Champaign*

- **Correcting Phase Discrepancies in Ultra-high Field Magnetic Resonance Spectroscopic Imaging**
  - Corrected the even-odd echo inconsistency based on physic models, the subspace method, and the low rank method
  - Improved the water removal ability after combining both physical models, the subspace method, and the FIR filtering

Graduate Research Assistant, Neural Engineering Lab Jun. 2017 – May. 2019
Supervised by *Prof. Junfeng Sun and Prof. Shanbao Tong, BME, SJTU*

- **Extracting Individual Neural Fingerprint Encoded in Functional Connectivity by Silencing Indirect Effects**
  - Obtained significantly improved subject discriminability by inferring direct functional connectivity from functional brain networks with the silencing method for the first time
  - Elucidated the underlying reason for the improved performance, which is that reliable edges dominated the subject discriminability of functional brain networks
  - Validated the results on different scan durations, spatial normalization approaches, parcellation schems, statistical association measures, brain states, and two additional datasets

- **Inferring Vulnerable Nodes and Edges by Assessing Brain Network Resilience**
  - Observed the inverted-U relationship between brain networks resilience and age by resilience analysis in three lifespan-DTI datasets
  - Identified the most critical anatomical areas for brain networks resilience: bi-hemispheric putamens and precuneus

- **Neuromodulation Effects of Low-intensity Transcranial Ultrasound Stimulation**
  - Demonstrated antidepressant-like effects of low-intensty TUS in rats for the first time
  - Showed that neuromodulation effects of pulsed transcranial ultrasound stimulation were correlated with the initial brain state

Chun-Tsung Program Sep. 2016 – May. 2017
Supervised by *Prof. Junfeng Sun, BME, SJTU*

- **Predicting and Validating the Effects of Transcranial Ultrasound Stimulation**

- Implemented the neuronal intramembrane cavitation excitation model to predict suppression and excitation effects of different ultrasound parameters
- Validated the predictions by experiments results

SJTU-KTH Summer School Sep. 2016 – May. 2017

Supervised by *Prof. Qian Wang, BME, SJTU and Prof. Örjan Smedby, School of Technology and Health, KTH Royal Institute of Technology*

➢ **Using Convolutional Neural Networks to Segment Brain Glioma**

- Implemented a multi-channels (T1 and T2 FLAIR MRI channels) CNN to segment brain glioma
- Evaluated segmentation performance using classification accuracy, Dice's coefficient, and visual inspection

TEACHING EXPERIENCE

Teaching Assistant, Biomedical Signals and Systems (1) Feb. 2019 – Jun. 2019

BME, SJTU

➢ Evaluated course assessments for 69 sophomore and junior level undergraduates
➢ Notified instructors of significant problems with assignments

PUBLICATIONS

[1] **Jin, W.**, Zhu, H., Shu, P., Tong, S. Sun, J., Extracting individual neural fingerprint encoded in functional connectivity by silencing indirect effects, under review.

[2] Shu, P., **Jin, W.**, Zhu, H., Tong, S. Sun, J., Inferring vulnerable nodes and edges by assessing brain network resilience, under review.

[3] Zhang, D., Li, H., Sun, J., Hu, W., **Jin, W.**, Li, S., & Tong, S. (2018). Antidepressant-like effect of low-intensity transcranial ultrasound stimulation. *IEEE Transactions on Biomedical Engineering*, *66*(2), 411-420.

[4] Li, H., Sun, J., Lu, H., **Jin, W.**, Lewin, P. A., Tong, S., Pulsed transcranial ultrasound modulates the cortical response to the functional electrical stimulation: in vivo animal study using optical neurovascular imaging, under review.

HONORS & AWARDS

➢ **Chun-Tsung Scholarship** (established by Tsung-Dao Lee, 1%, university-wide) 2017
➢ **Outstanding graduates** of Shanghai Jiao Tong University (10%, university-wide) 2017
➢ **Academic Excellence Scholarship Class-A** (5%, university-wide) 2016
➢ **Merit Student** of Shanghai Jiao Tong University (3%, university-wide) 2015&2016
➢ **LUYUEJIAO Scholarship for Overseas Studies** (university-wide) 2016
➢ **Biomedical Engineering Alumni Scholarship** (10%, university-wide) 2015&2016&2017
➢ **Academic Excellence Scholarship Class-B** (10%, university-wide) 2014&2015

SKILLS

Courses in Master: Biomedical Signal Processing (A+). Matrix theory (A). Optimization Estimation Theory and System Identification (A+). Cognitive Visual Neuroscience (A+).
Courses in Undergraduate: Biomedical Image Processing (92). Digital Signal Processing (91). Principles of Automatic Control (92). Mathematical Methods in Physics (92). Probability and Statistics (96).
Programming: MATLAB, Python, C++
Software & Toolkits: SPM, FSL, Freesurfer, DPARSF/DPABI, PANDA
Languages: TOEFL: 107 (R30+L29+S23+W25); GRE: 328 (V158+Q170+AW4)