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), Major GPA: **3.79/4.0**, Rank: **2/45**

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

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

RESEARCH INTEREST

I am passionate about developing novel image processing and analyzing techniques for MRI to better understand individual brains.

RESEARCH EXPERIENCE

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

- **Multi-Modal Brain Imaging by SPectroscopic Imaging by exploiting spatiospectral CorrElation (SPICE)**
  - Corrected the echo inconsistency based on physics models, the subspace method, and the low-rank method in ultra-high field Magnetic Resonance Spectroscopic Imaging (MRSI)
  - Improved the water removal ability after combining physics models and FIR filtering in J-resolved MRSI
  - Extracted unwrapped phase images for Quantitative Susceptibility Mapping

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 schemes, 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-intensity TUS on 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 TUS 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-channel (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

- Helped the instructor prepare slides for lectures
- Evaluated course assessments for 69 sophomore and junior level undergraduates

PUBLICATIONS

[1] **Jin, W.**, Zhu, H., Shu, P., Tong, S. Sun, J., Extracting individual neural fingerprint encoded in functional connectivity by silencing indirect effects. *IEEE Transactions on Biomedical Engineering*. Accepted.

[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 & HIGHLIGHTS

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)