Jiaxin Xiao

Tsinghua University, Beijing, P.R. China
Phone: (+86)15349201979
Email: jiaxinxiaothu@gmail.com
Personal Website

Female, May 19th, 2001

EDUCATION

Department of Electronic Engineering, Tsinghua University, China

B.E. in Electronic Engineering **Overall GPA: 3.82/4.0** **Major GPA: 3.81/4.0** **Ranking: top 23%**

Core Courses: Data and Algorithm (A) / Advanced Matlab Programming and Its Application (A+) / Computer Program Design (A) / Fundamentals of Statistical Signal Processing (A) / Basic Experiments for Electronic Circuits and Systems (A) / Fundamental Experiment of Digital Logic and Processor (A) / Probability and Stochastic Processes (A-)

English Test: TOEFL 109 (reading 29 listening 30 speaking 24 writing 26)

RESEARCH EXPERIENCE

Training neural networks for super-resolution MRI using noisy high-resolution reference data 8/2022 – present

Advisor: Qiyuan Tian, Instructor in Radiology (Martinos Center for Biomedical Imaging, Harvard Medical School)

➢ Designed and conducted both simulation and empirical data experiments and demonstrated comparable effectiveness in the training with noisy high-resolution reference data and clean data in super-resolution tasks;

➢ Simulated the low-resolution image volume and noisy high-resolution image volume, and realized the neural network MU-Net based on Tensorflow;

➢ Demonstrate that a smaller number of repetitions of high-resolution reference data for averaging can be adopted to achieve slightly compromised super-resolution performance and improve feasibility and accessibility.

High-frequency oscillations detection using Transformer-based neural network 6/2022 – present

Advisor: Dominique Duncan, Assistant Professor of Neurology (University of Southern California)

➢ Designed independently a Transformer-based neural network for the EEG high-frequency oscillation (HFO) detection;

➢ Pre-processed EEG signals using Matlab, added a linear projection layer before the Transformer, and redesigned the Encoder-Decoder layer to give specific detections of HFO segments;

➢ Obtained preliminary results that show the outperformance over the four automatic detectors that are widely used in labs and the previously proposed CNN-based detector;

➢ Currently working on further model optimization and validation.

CNN model for sustained attention level evaluation using EEG 09/2021 – 12/2021

Advisor: Milin Zhang, Associate Professor of Electronic Engineering (Tsinghua University)

➢ Built a CNN for attention level classification, consisting of four convolutional blocks, a GAP layer, and a linear layer;

➢ Constructed each convolutional block with a 1-d convolutional layer, a 1-d batch normalization (BN) layer, and a rectified linear unit (ReLU) layer;

➢ Optimized convolutional blocks' structure and achieved a subject independent (SI) accuracy of 90%, which is reliable for the attention evaluation application.

PUBLICATION

1. **Jiaxin Xiao**, Zihan Li, Berkin Bilgic, Jonathan R. Polimeni, Susie Huang, Qiyuan Tian, "SRNR: Training neural networks for *Super-Re*solution MRI using *N*oisy high-resolution *Re*ference data", submitted to ISMRM.

2. Chao Zhang, Zijian Tang, Taoming Guo, Jiaxin Lei, **Jiaxin Xiao**, Anhe Wang, Shuo Bai, Milin Zhang, "SaleNet: A low-power end-to-end CNN accelerator for sustained attention level evaluation using EEG", 2022 IEEE International Symposium on Circuits & Systems (ISCAS 2022).

LEADERSHIP AND ACTIVITIES

Student Union in Department of Electronic Engineering | Director of Students' Rights and Interests Department

➢ Host Course Seminars for 10 core courses in the Department of Electronic Engineering 05/2021 – 07/2022

➢ Interview course teachers and produce promotional videos

SELECTED HONORS AND AWARDS

Scholarship for Academic Excellence (top 20%)	2020 & 2021
Third Prize of the Intelligent Unmanned Aerial Vehicle Challenge (top 4 in Tsinghua)	2021
Scholarship for Social Practice Excellence (top 2%)	2020

SKILLS

Programming: MATLAB, Python, PyTorch, TensorFlow, Keras, C/C++, Verilog HDL, LATEX, git, ROS

Languages: Mandarin Chinese, English (Proficient in reading, speaking, listening, and scientific English writing)