Curriculum Vitae

Chen, Ruiqi

Peking University
Intelligent Science and Technology

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EDUCATION

Bachelor of Science | Peking University, Beijing, China 2017.9 - 2021.7

- Department of Machine Intelligence, School of Electronic Engineering and Computer Science
- Overall GPA: 3.56/4.0 (84.7/100) Last term's GPA: 3.72/4.0 (87.8/100)
- English skills: GRE 338 (AW 4) , TOEFL 106 (Speaking 24), CET6 618

RESEARCH EXPERIENCE

IDG/McGovern Institute for Brain Research | Tsinghua University 2019.7 - Present

- **Advisor:** Prof. Bo Hong (PI)
- **EEG Oddball Experiment (Link)**
  - Designed and performed an EEG oddball experiment with Psychtoolbox
  - Conducted event-related potential (ERP) analysis with EEGLAB
  - Successfully replicated the MMN/P300 effect
- **EEG Functional-Connectivity-Based Microstates Analysis (Link)**
  - Recorded long-time EEG signal from 5 subjects resting/listening to a story/listening to music, with eyes open or closed
  - Conducted k-means clustering based on voltage distribution or functional connectivity pattern
  - Analyzed results with mathematic tools including dynamic general linear model, transition matrix, multidimensional scaling, unsupervised learning, and silhouette evaluation (Codes)
  - Discovered the functional-connectivity-based equivalent of the classic EEG microstates
  - Established the link between microstates and activity of the Default Mode Network (DMN)
  - Explored the interaction between alpha oscillation and microstates' internal dynamics
  - Results will be summarized and submitted soon after further analysis

IDG/McGovern Institute for Brain Research | Peking University 2019.3 - Present

- **Advisor:** Prof. Huan Luo (PI)
- **EEG data analysis practice (Link)** 2019.3
  - Implemented an inverted encoding model based on an EEG visual working memory experiment
  - Reconstructed the tuning curve for the orientation of two Gabor stimuli
  - Practiced MATLAB programming, basic EEG data processing, and multivariate pattern analysis
- **Project: The representation of time and order in working memory** 2019.4 – Present
  - Reviewed over 40 articles about the temporal organization in working memory (Link)
  - Designed an EEG experiment to explore the neural mechanism underlying the manipulation of mnemons in auditory working memory and collected data from 16 subjects (Link)
  - Replicated the result in (Albouy et al., 2017)
  - Working on the data through ERP and time-frequency analysis currently

PROGRAMMING PROJECTS

Visualization of NSFC Funding 2018 (Link) **2019.10**

- Visualized the *National Natural Science Foundation of China* (NSFC) funding allocation with SVG
- Revealed the hidden disparity in NSFC funding allocation among different higher education institutions and among different regions
- Practiced front-end programming (HTML/CSS/Javascript, all self-taught within one week)
- Acquired visualization skill (with D3.js) for high-dimensional big data (e.g., EEG signal) analysis

ACTIVITIES

Summer Program for Neuroscience and Cognitive Science | Tsinghua University 2019.8

- Learnt about the principles, methodology and frontiers of neuroscience (Details)

SKILLS

- **Programming**: C/C++, Python, MATLAB, HTML/CSS/Javascript, SVG (with D3.js)
- **EEG experiment:** Psychtoolbox programming, EEG recording
- **EEG data analysis**: ERP, spectrotemporal analysis, multivariate pattern analysis, dynamic general linear model, unsupervised clustering, phase coupling analysis