Zitong Lu

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(Update by 08/2020)

Education Background

09/2018- Present — Master of Science, **Cognitive Neuroscience**
East China Normal University — Shanghai, China
The Institute of Cognitive Neuroscience, School of Psychology and Cognitive Science
Advised by Yixuan Ku, Yong-di Zhou & Huimin Wang, Overall GPA: 85.3 / 100

09/2014-06/2018 — Bachelor of Engineering, **Software Engineering**
Northeastern University — Shenyang, China
Department of Software Engineering, Software College
Overall GPA: 84.6 /100

Research Interests

Visual working memory, Attention, Decision making
Multivariate pattern analysis (MVPA): SVM-based decoding, Representational similarity analysis (RSA)
Machine Learning, Deep Learning.

Programming & Experiment Skills

Computer Languages:	Python, C, C++, MATLAB, Java, Julia
Software & Toolboxes:	EEGLAB, MNE, SPM, Nibabel, Nilearn, NeuroRA, Tensorflow, PyTorch
Experimental experiences:	EEG, fMRI, Eye tracker and TMS

Publications

Lu, Z*., & Ku, Y. (submitted). NeuroRA: A Python toolbox of representational analysis from multi-modal neural data. (bioRxiv version: https://doi.org/10.1101/2020.03.25.008086)

Research Experience

Main Projects:

Cross-Temporal Representational Similarity Analysis-based E/MEG Decoding on PyCTRSA (07/2020 - Present)

Designed and realized a cross-temporal E/MEG decoding method based on traditional RSA and implemented a Python toolbox called PyCTRSA.

PyCTRSA Website: https://github.com/ZitongLu1996/PyCTRSA

Representation of the unattended feature in Visual Short-Term Memory by EEG Decoding (03/2019 - Present)

Use time-by-time EEG decoding method to explore how different unattended represented in our brain in VSTM.

Dynamic Representation between Deep Neural Network and Human Brain in Visual Short-Term Memory (04/2019 - Present)

Temporal correlation between the representation of brain activity signal and the representation of different layers of artificial deep convolutional neural network in VSTM.

NeuroRA: A Python Toolbox of Representational Analysis from Multi-modal Neural Data (03/2019 – Present, continuously updated)

Designed and realized a Python toolbox (NeuroRA) for multimode (behavioral, EEG, MEG, fNIRS, ECoG, electrophysiology, fMRI) neural data representation analysis.
NeuroRA Website: https://neurora.github.io/NeuroRA/

Image Recognition and Object Detection of Fused Magnesium Furnace Based on Deep Learning (11/2017 – 05/2018, undergraduate thesis project)

Independently developed a piece of software for real-time working status recognition of fused magnesium furnace based on deep learning (an object detection algorithm based on Darknet, an image classification algorithm based on Caffe and a software based on Qt, C and C++).

Joint Projects:

Reward and Penalty Expectations Facilitate the Precision of Visual Working Memory through Dissociable Neural Mechanisms (04/2019 – Present)

Participating in doing Searchlight RSA and ROI-based RSA among behavioral data, different decision-making coding models and fMRI data.

Decoding Different Visual Features of Visual Short-Term Memory: An EEG Study (09/2018 – 03/2019)

Participating in designing and realizing a novel memory decoding model based on deep learning to decoding the attended feature(orientation) and unattended feature(position).

Working Experience

05/2017-08/2017	Programmer (as Project Leader) in iSoftStone
09/2018-01/2020	Research Assistant in East China Normal University
03/2020-Present	Research Assistant in Sun Yat-Sen University

Honors & Awards

12/2019	Short-Term Overseas Research Scholarship (about **USD 7,000**, by ECNU)
12/2018	Third prize (**30%**, China Graduate Student Mathematical Contest in Modeling)
12/2017	Outstanding Graduate Student (**3%**, Department of Education of Liaoning Province)
11/2017	Second-Class Merit Scholarship (**13%**, CNY 1,000, by NEU)
04/2017	Meritorious Winner (**13%,** Mathematical Contest in Modeling, by the U.S COMAP)
12/2016	First-Class Liu Dajie & Fang Wenyu's Scholarship (**<1%**, **CNY 10,000**, by NEU)
11/2016	Provincial First Prize (**3%**, China Undergraduate Mathematical Contest in Modeling)
11/2016	First-Class Merit Scholarship (**13%**, **CNY 2,000**, by NEU)
04/2016	Honorable Mention (**30%**, Mathematical Contest in Modeling, by the U.S COMAP)
11/2015	Second-Class Merit Scholarship (**13%, CNY 1,000**, by NEU)

Hobbies

Football, music