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EMPLOYMENT

Postdoctoral Fellow 2021-Present
Department of Psychology, Tsinghua Laboratory of Brain and Intelligence, Tsinghua University
Advisor: Prof. Jia Liu.

EDUCATION

Ph.D. in Cognitive Neuroscience 2015-2021
IDG/McGovern Institute for Brain Research, Beijing Normal University
Dissertation title: "From Machine to Human: Object Relational Representations Emerge in Object Recognition."
Advisors: Associate Prof. Yiyin Song and Prof. Jia Liu.

BA in Biological Technology 2015-2021
School of Life Science and Technology, Xidian University

Publications

Preprint

1. **Taicheng Huang**, Jia Liu (2023). A stochastic world model on gravity for stability inference. *Biorxiv*. https://doi.org/10.1101/2022.12.30.522364.

Published

First Author

1 **Taicheng Huang**, Xiayu Chen, Jian Jiang, Zonglei Zhen, Jia Liu (2019). A Probabilistic Atlas of the Human Motion-selective Complex Built from Large-scale Functional Localizer Data. *Human Brain Mapping*. 40(12):3475-3487.

2 **Taicheng Huang**, Zonglei Zhen and Jia Liu (2021). Semantic Relatedness Emerges in Deep Convolutional Neural Networks Designed for Object Recognition. *Frontiers in Computational Neuroscience.* 15:625804. doi: 10.3389/fncom.2021.625804.

3 **Taicheng Huang**, Yiying Song, and Jia Liu (2022). Real-world size of objects serves as an axis of object space. *Communications Biology* 5 (749).

4 Sai Ma#, **Taicheng Huang**#, Yukun Qu, Xiayu Chen, Yajie Zhang, Zonglei Zhen (2022). An fMRI dataset for whole-body somatotopic mapping in humans. *Scientific Data* 9 (1):1-10.

Co-first Author.

Other authors

1. Lijie Huang, **Taicheng Huang**, Zonglei Zhen and Jia Liu (2016). A Test-retest Dataset for Assessing Long-term Reliability of Brain Morphology and Resting-state Brain Activity. *Scientific Data.* 3:160016.
2. Zonglei Zhen, Xiang-Zhen Kong, Lijie Huang, Zetian Yang, Xu Wang, Xin Hao, **Taicheng Huang**, Yiying Song, and Jia Liu (2017). Quantifying the Variability of Scene-Selective Regions: Interindividual, Interhemispheric and Sex Differences. *Human Brain Mapping.* 38:2260-2275.
3. Yicong Lin, Tiaotiao Liu, Qian Huang, Yingying Su, Weibi Chen, Daiquan Gao, Xin Tian, **Taicheng Huang**, Zonglei Zhen, Tao Han, Hong Ye and Yuping Wang (2019). Electroencephalography and Functional Magnetic Resonance Imaging-Guided Simultaneous Transcranial Direct Current Stimulation and Repetitive Transcranial Magnetic Stimulation in a Patient with Minimally Conscious State. *Frontiers in Neuroscience*. 13: 746.
4. Chao Wu, Zonglei Zhen, Lijie Huang, **Taicheng Huang** and Jia Liu (2020). COMT-Polymorphisms Modulated Functional Profile of the Fusiform Face Area Contributes to Face-Specific Recognition Ability. *Scientific Reports*. 10:2134.
5. Xiayu Chen, Ming Zhou, Zhengxin Gong, Wei Xu, Xingyu Liu, **Taicheng Huang**, Zonglei Zhen and Jia Liu (2020). DNNBrain: A Unifying Toolbox for Mapping Deep Neural Networks and Brains. *Frontiers in Computational Neuroscience.* 14:580632. doi: 10.3389/fncom.2020.580632.
6. Xin Hao, **Taicheng Huang**, Yiying Song, Xiangzhen Kong, and Jia Liu (2021). Development of navigation network revealed by resting-state and task-state functional connectivity. *NeuroImage* 243: 118515.
7. Zhiyuan Zhu, **Taicheng Huang**, Zonglei Zhen, Boyu Wang, Xia Wu, Shuo Li (2023). From sMRI to task-fMRI: A unified geometric deep learning framework for cross-modal brain anatomo-functional mapping. *Medical Image Analysis*: 102681.

Skills

Programming

- GitHub: https://github.com/helloTC
- Language: Python.
  - Also use R, MATLAB or Linux Bash for specific occasions.
- Toolbox:
  - The ATT toolbox: https://github.com/helloTC/ATT/ (the First Contributor)
  - The DNNBrain toolbox: https://github.com/helloTC/dnnbrain/ (the Third Contributor)

- The GravityWorldModel toolbox: https://github.com/helloTC/GravityWorldModel/ (the First Contributor)

Computational servers

- Familiar with Linux Systems (i.e., Ubuntu & CentOS).

Neuroimaging data analysis (fMRI)

- Familiar with mainstream software for preprocessing
  - FSL (https://fsl.fmrib.ox.ac.uk/fsl/)
  - FreeSurfer (https://surfer.nmr.mgh.harvard.edu)
  - fMRIPrep (https://fmriprep.org/en/stable/)
  - SPM (www.fil.ion.ucl.ac.uk/spm/)
- Familiar with HCP-style data preprocessing pipeline and analysis
  - HCPPipeline (https://github.com/Washington-University/HCPpipelines)
  - Workbench (https://humanconnectome.org/software/connectome-workbench)
  - CIFTIFY (https://github.com/edickie/ciftify)

Psychology

- Familiar with psychophysics experimental design and have experience with computational models, including deep neural networks and reinforcement learning.

Reviewer Experience

Scientific Reports, JMIR series: *Journal of Medical Internet Research*, *JMIR Public Health and Surveillance*, *JMIR Bioinformatics and Biotechnology, JMIR Formative Research*, *Journal of Neuroscience, Heliyon*.

Conference & Online Course

Orals

1. Creating a Functional Probabilistic Atlas of hMT/V5+ in a Large Population. Presented at the 2017 International Conference on Brain Informatics, Beijing, China, November, 2017.
2. A Probabilistic Atlas of hMT/V5+ Defined from Selectivity. Presented at the 2017 State Key Laboratory of Cognitive Neuroscience and Learning Annual Meeting. Beijing, China, December, 2017
3. Semantic Relatedness Emerges in Deep Convolutional Neural Networks Designed for Object Recognition. Presented at Seminar Series in the Tsinghua Laboratory of Brain and Intelligence (THBI). Beijing, China, March, 2021. (Poster Link: https://brain.tsinghua.edu.cn/info/1018/1047.htm)
4. Real-world Size of Objects Serves as an Axis of Object Space. Presented at CCBBI Student Group Presentation at the Ohio State University (Online). Columbus, USA, September, 2021. (Video Link: https://www.youtube.com/watch?v=9mg57pnDPTo, in English)
5. Retrospect: how to finish fMRI research confidently. Presented at the Center for Biomedical Imaging Research at Tsinghua University (Online). Beijing, China,

July, 2022. (Video Link: https://www.bilibili.com/video/BV1A34y1W7sx/?spm_id_from=333.999.0.0&vd_source=551573e3c73bf59a0e02142c5be18b21, in Chinese)

6. Real-world Size of Objects Serves as an Axis of Object Space. Presented at the Institute of Psychology of the CAS (Online). Beijing, China, August, 2022.

Posters

1. **Taicheng Huang**, Zonglei Zhen, Yiying Song and Jia Liu (2017). Characterizing Interindividual Variability of Motion Sensitive Regions. Poster presented at the 23nd Annual Meeting of the Organization of Human Brain Mapping, Vancouver, BC, Canada, June.
2. **Taicheng Huang**, Zonglei Zhen, Xiayu Chen, Jian Jiang, Kevin S. Weiner, Jia Liu (2018). Predicting the most probable location of motion selectivity in the lateral occipital cortex using cross-validation in over 500 participants. Poster presented at the 24th Annual Meeting of the Organization of Human Brain Mapping, Singapore, June.
3. **Taicheng Huang**, Yiying Song, Jia Liu (2021). Real-world Size of Objects Serves as an Axis of Object Space. Poster presented at the 4th Annual Meeting of the Tsinghua Laboratory of Brain and Intelligence (THBI). Beijing, China, December.

Teaching

Teaching Assistant, Computational Neuroscience. Beijing Normal University. Fall 2015, 2017.
Teaching Assistant, Big Data Programming. Beijing Normal University. Spring 2020.
Teaching Assistant, Mind, Individual & Culture. Tsinghua University. Fall 2022.