Zetian Yang

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EDUCATION

2012-present	Beijing Normal University M.S. in Cognitive Neuroscience (*expected 2015*) Advisor: Jia Liu & Zonglei Zhen State Key Laboratory of Cognitive Neuroscience and Learning
2008-2012	Beihang University (former Beijing University of Aeronautics and Astronautics) B.Eng. in Computer Science and Technology Major GPA: 3.75/4; Overall GPA: 3.65/4

RESEARCH SUMMARY

I use fMRI and behavioral tests to study the neural basis of object recognition and categorization, with a special interest in faces. In first part of my work, I studied the characteristics and individual differences of face-selective regions, by creating a probabilistic atlas for them. Based on that, my following research focuses on the relationships between different neural measures – category selectivity, pattern dissimilarity, representational geometry – of these regions, and how these neural measures relate to behavioral abilities.

RESEARCH PROJECTS

Details about each project can be found by clicking on its title.

2012-2014 **Probabilistic Atlas of Six Face-selective Regions**

Based on a large fMRI dataset and an efficient region labeling software (FreeROI) we developed, we delineated six face-selective regions on the ventral pathway of 202 subjects. A probabilistic atlas was created for the six regions, and different aspects of these regions were further characterized to quantify individual differences and hemisphere asymmetries.

Roles

- » Statistical processing of the fMRI dataset by FSL and scripts
- » One of the two core developers of FreeROI
- » Delineation of about 1000 subject-specific regions
- » Atlas construction and most further analysis
- » Part of manuscript preparation.

2013-2014 **Differential Roles of Category Selectivity and Multivariate Pattern in Facial Expression and Identity Recognition**

Using subject-specific ROI analysis and face-related behavioral tests, we found a double dissociation between univariate and multivariate neural measures: face selectivity in pSTS predicted facial expression recognition, but not facial identity recognition, while pattern dissimilarity in the same region predicted facial identity recognition, but not expression recognition.

Roles

- » Project designer
- » Data miner
- » Manuscript preparation

2014-present **Interplay of Category Selectivity, Within-category Representation of Similarity, and Behavior**

Using representational similarity analysis (RSA), we are investigating the relationships between representational geometry, category selectivity, and behavior.

Roles

- » Project designer
- » Data miner

PUBLICATIONS

Manuscripts

- Zhen Z*, **Yang Z***, Huang L, Kong X, Wang X, Dang X, Huang Y, Song Y, Liu J. (*under review, Cerebral Cortex*), Quantifying Interindividual Variability and Asymmetry of Face-selective Regions: A Probabilistic Functional Atlas. *co-first author
- **Yang Z**, Zhen Z, Song Y, Liu J. (*draft under revision*), Category Selectivity and Pattern Dissimilarity in pSTS Differentially Predict Facial Expression and Identity Recognition Abilities.

Journal Articles

- Huang L, Song Y, Li J, Zhen Z, **Yang Z**, Liu J. 2014. Individual Differences in Cortical Face Selectivity Predict Behavioral Performance in Face Recognition. *Frontiers in Human Neuroscience*. 8:483. doi: 10.3389/fnhum.2014.00483

Conference Presentations

- Huang L, **Yang Z**, Zhou G, Liu Z, Dang X, Kong X, Wang X, Zhen Z, Liu J. 2014. FreeROI: A Software for Fast ROI Labeling and Visualization. *The 17th National Academic Congress of Psychology*, Beijing, China.

Software Copyright

- CHN 00238594 - A Software for Brain Region Segmentation and Atlas Construction. Owner: Beijing Normal University; Main Developers: Huang L, **Yang Z**

OTHER EXPERIENCE

2013-present	Auto-labeling of Functional Regions by SVM and Random Forests Project member participating for system and feature design
2012-present	Center for Brain Imaging, Beijing Normal University MRI scanning operator
2012	Machine Learning Class Accomplished on Coursera

SKILLS

fMRI	Abundant experience with fMRI analysis software (FSL, FreeSurfer, etc.) in both GUI and script usages; Proficient in common fMRI data analysis methods: ROI analysis, multivariate pattern analysis (MVPA), representational similarity analysis (RSA), and searchlight; Resting-state and VBM analysis.
Programming	Python; Matlab; C
Linux	Arch, CentOS, Ubuntu, Fedora, etc. Computer cluster construction and administration.
Standard Tests	TOEFL: 106 (R29, L27, S23, W27) GRE: 333 (V165, Q168)+3.5 (AW)
Others	Strong interests and good foundations in mathematical statistics and machine learning.

HONORS & AWARDS

2013	Excellent Academic Achievement (2nd-prize), BNU
2012	Excellent First-year Graduate Student, BNU
2012	Excellent in Student Research Training Program (SRTP), Beihang
2010	Samsung Scholarship, Beihang