Zetian Yang

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EDUCATION

2012-present — Beijing Normal University
M.S. in Cognitive Neuroscience (*expected 2015*) Advisor: Jia Liu
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
Major rank: 3rd /187 ; Overall rank: 6th /187

RESEARCH SUMMARY

I use fMRI and behavioral tests to study the neural basis of object recognition. Firstly, I studied the organization and characteristics of face-selective regions. Then I focused on the functional meanings of various neural measures — category selectivity, pattern dissimilarity, representational geometry — in those regions.

RESEARCH PROJECTS

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

2012-2014 — **Probabilistic Atlas of Six Face-selective Regions**
We delineated six face-selective regions on the ventral pathway of 202 subjects, based on customed labelling protocal and tool. Then we created a probabilistic atlas for those regions, and quantified their individual differences.

Roles

- » Parallel activation analysis of fMRI dataset, by fusing modules from FreeSurfer and FSL
- » Core developer of FreeROI, a program for fast region labelling and analyzing
- » Delineation of about 1000 subject-specific regions
- » Atlas construction and regional feature analysis
- » Part of manuscript preparation

2013-2014 — **Differential Roles of Category Selectivity and Multivariate Pattern in Facial Expression and Identity Recognition**
I find a double dissociation between univariate and multivariate neural measures: face selectivity in the 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**
I am investigating the relationships among representational geometry, category selectivity, and behavior, using representational similarity analysis (RSA). Preliminary results show that similarities of neural representations of exemplars are correlated with category selectivity.

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*), 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 the pSTS Differentially Predict Facial Expression and Identity Recognition Abilities.
- Kong F, Ding K, **Yang Z**, Dang X, Hu S, Song Y, Liu J. (*under review, 2nd revision*), Examining Gray Matter Structures Associated with Individual Differences in Global Life Satisfaction in a Large Sample of Young Adults.

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 Labelling 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-labelling 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 experiences 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	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