

# ZETIAN YANG

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## EDUCATION

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- 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

## RESEARCH SUMMARY

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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 organization and characteristics 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

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*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 various aspects were further characterized to quantify their 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

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### 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

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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

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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

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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