

# 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  
Major rank: 3<sup>rd</sup>/187 ; Overall rank: 6<sup>th</sup>/187

## RESEARCH SUMMARY

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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

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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](#)**  
We delineated six face-selective regions on the ventral pathway of 202 subjects, based on customized labelling protocol 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

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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*), 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*), 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
- Kong XZ, Wang X, Huang L, Pu Y, **Yang Z**, Dang X, Zhen Z, Liu J. 2014. Measuring individual morphological relationship of cortical regions. *Journal of Neuroscience Methods*. 237:103-7. doi:10.1016/j.jneumeth.2014.09.003

### 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

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

## SKILLS

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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.
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

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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