

# Yimeng Zhang

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## EDUCATION

**CARNEGIE MELLON UNIVERSITY**  
PH.D. CANDIDATE, COMPUTER SCIENCE  
DEPT. AND CENTER FOR THE NEURAL  
BASIS OF COGNITION  
Aug. 2013–Present | Pittsburgh, PA  
Advisor: Tai Sing Lee  
Presidential Fellowship in the Life  
Sciences, 2015–2016

**ZHEJIANG UNIVERSITY**  
B.ENG. IN COMPUTER SCIENCE  
Sep. 2009–Jun. 2013 | Hangzhou, China  
GPA: 3.95/4.0 Rank: 1/180

## LINKS

Github://[zym1010](https://github.com/zym1010)  
LinkedIn://[zym1010](https://www.linkedin.com/in/zym1010)

## COURSEWORK

### GRADUATE

Computer Vision • Convex Optimization •  
Topics in Deep Learning • Machine Learning  
• Neural Signal Processing

### COURSERA

Digital Signal Processing • Probabilistic  
Graphical Models • An Introduction to  
Functional Analysis

## PROGRAMMING SKILLS

Proficient  
Python • MATLAB  
Familiar  
C • C++ • Java • R • Shell

## OPEN SOURCE

I have developed various tools for  
computational neuroscience, computer  
vision, data management, lab management,  
etc. to facilitate research in Lee Lab. See  
[zym1010.github.io/software](https://github.com/zym1010/software).

## BOOK NOTES

I have accumulated a large amount of notes  
on deep learning, graphical models, image  
statistics, computational neuroscience, etc.  
See [zym1010.github.io/notes](https://github.com/zym1010/notes).

## RESEARCH

My main research interests are using and developing neural network-based models to explain computation mechanisms underlying lower visual areas of primates, as well as general machine learning and computer vision problems.

### PUBLICATIONS | INCLUDING SOME IN PREPARATION

1. **Yimeng Zhang**, Tai Sing Lee, Shiming Tang, "Convolutional neural network models for modeling V1 responses to complex patterns," Submitted to *J. of Computational Neuroscience*.
2. Shiming Tang, **Yimeng Zhang**, Zhihao Li, Ming Li, Fang Liu, Hongfei Jiang, Tai Sing Lee, "Large-scale two-photon imaging reveals high population sparseness in superficial layer of primate V1," Submitted to *PLOS Computational Biology*.
3. Shiming Tang, Tai Sing Lee, Ming Li, **Yimeng Zhang**, Yue Xu, Fang Liu, Benjamin Teo, Hongfei Jiang, "Complex Pattern Selectivity in Macaque Primary Visual Cortex Revealed by Large-Scale Two-Photon Imaging," in *Current Biology*, 2017.
4. Hao Wang, Xingyu Lin, **Yimeng Zhang**, Tai Sing Lee, "Learning Robust Object Recognition Using Composed Scenes from Generative Models," in *14th Conference on Computer and Robot Vision (CRV)*, 2017.
5. Xingyu Lin, Hao Wang, Zhihao Li, **Yimeng Zhang**, Alan Yuille, Tai Sing Lee, "Transfer of View-manifold Learning to Similarity Perception of Novel Objects," in *5th International Conference on Learning Representations (ICLR)*, 2017.
6. **Yimeng Zhang**, Xiong Li, Jason M. Samonds, Tai Sing Lee, "Relating functional connectivity in V1 neural circuits and 3D natural scenes using Boltzmann machines," in *Vision Research*, 2015.

### POSTERS & ABSTRACTS | INCLUDING SOME IN PREPARATION

1. **Yimeng Zhang**, Corentin Massot, Tiancheng Zhi, George Papandreou, Alan Yuille, Tai Sing Lee, "Understanding neural representations in early visual areas using convolutional neural networks," in *Neuroscience (SfN)*, 2016.
2. Zhihao Li, **Yimeng Zhang**, Ming Li, Fang Liu, Hongfei Jiang, Tai Sing Lee, Shiming Tang, "Sparse and distributed codes of neuronal population in primary visual cortex," in *Neuroscience (SfN)*, 2016.
3. **Yimeng Zhang**, Xiong Li, Jason M. Samonds, Benjamin Poole, Tai Sing Lee, "Relating functional connectivity in V1 neural circuits and 3D natural scenes using Boltzmann machines," in *Computational and System Neuroscience (Cosyne)*, 2015.

## EXPERIENCE

### UNIVERSITY OF BRITISH COLUMBIA | RESEARCH INTERN

Jul. 2012–Oct. 2012 | Vancouver, Canada  
Advisor: Rabab Ward

- Application of compressive sensing to EEG signals