

# 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

## 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

Python (extensive) • MATLAB (extensive) •  
C/C++ • Java • R • Shell

## TOOLS

PyTorch • Caffe • Theano • TensorFlow •  
scikit-learn • h5py • pandas • Docker •  
conda

## OPEN SOURCE

I have developed various tools for  
computational neuroscience, computer vision,  
data management, lab management, etc. to  
facilitate research in Lee Lab; I have also made  
minor contributions to various software  
projects like PyTorch, pandas, and scikit-learn.  
See [zym1010.github.io/software](https://zym1010.github.io/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://zym1010.github.io/notes).

## CAREER GOAL

I am enthusiastic about making AI, ML, and good CS technologies in general available to those less technical people and businesses. With in-depth knowledge of many AI-related topics and diverse hands-on experience of engineering, I am prepared to be a versatile engineer bridging the gap between AI research in the lab and its effective deployment in the real world.

## 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

1. **Yimeng Zhang**, Tai Sing Lee, Ming Li, Fang Liu, Shiming Tang, "Convolutional neural network models of V1 responses to complex patterns," in *J. of Computational Neuroscience*, 2018.
2. Shiming Tang, **Yimeng Zhang**, Zhihao Li, Ming Li, Fang Liu, Hongfei Jiang, Tai Sing Lee, "Large-scale two-photon imaging revealed super-sparse population codes in the V1 superficial layer of awake monkeys," in *eLife*, 2018.
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

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.

## EXPERIENCE

**PETUUM, INC. | SOFTWARE ENGINEER INTERN**  
May 2018–Aug. 2018 | Pittsburgh, PA

- Data wrangling libraries and DevOps utilities

**UNIVERSITY OF BRITISH COLUMBIA | RESEARCH INTERN**  
Jul. 2012–Oct. 2012 | Vancouver, Canada  
Advisor: Rabab Ward

- Application of compressive sensing to EEG signals