

# LETIAN CHEN

5 Yiheyuan Road, Haidian District, Beijing, CHINA 100871

zac.letian.chen@gmail.com | +86 15650708642 | <http://www.letianchen.me/>

## ACADEMIC INTERESTS

Reinforcement Learning in Human & Machine, Artificial Intelligence, Vision, Planning, Reasoning

## EDUCATION

**Peking University, School of Psychological and Cognitive Sciences**

B.S. in Psychology (Concentration: Cognitive Science and Neuroscience), Sep 2014 to Jul 2018

B.S. in Computer Science, Sep 2015 to July 2018

- **Psychology Overall GPA: 3.64/4.0, Junior GPA: 3.78/4.0**
- **Computer Science GPA: 3.8/4.0**
- **Computer Science Courses:** Discrete Mathematics, Advanced Machine Learning: Online Learning and Optimization, Data Structure and Algorithm, Algorithm Design and Analysis, Database Systems, (C++, Linux, Java, JavaScript) Programming, etc.
- **Self-taught Courses:** Machine Learning, Reinforcement Learning, Deep Reinforcement Learning
- **Awards:** Zhang Wenjin Scholarship (1%), Scholarship for undergraduate research, First Prize of National Olympiad in Informatics in Provinces Advanced Group

## RESEARCH EXPERIENCE

**Better Exploration using Good and Bad Demos**, Sep 2016 to Present, prepare to submit to ICML

*Team Leader, Directed Research, Advisor: Yizhou Wang, Peking University*

- Developed a tool to record human demos on OpenAI Universe platform
- Proposed a new algorithm based on Bootstrap DQN, carried out experiments. The results showed our method boosted RL exploration significantly. Since good and bad human demos are not hard to obtain, it can be a good way to accelerate RL exploration.
- Built up a sample efficiency proof of our method based on Gaussian Process

**Representation of Transition Matrix in Human Reinforcement Learning**, Sep 2017 to Present

*Undergraduate Thesis, Advisor: Hang Zhang, Peking University*

- Reviewed papers regarding human model-based RL, model-free RL, hierarchical RL
- Designed an experiment to determine whether human maintains a transition matrix in RL task (in progress)

**Image Style Transfer**, Sep 2017 to Present

- Implemented image style transfer algorithms of image-iteration and model-iteration

- Proposed a new generative adversarial network (GAN) based approach

#### **Face Morphing**, Mar 2016 to May 2016

- Implemented face morphing algorithm in C++, which is to morph two faces into one using face landmark detection and Delaunay triangulation
- Codebase and Result are shown on <https://github.com/sunshineclt/MagicMorpher>

#### **Chinese Word Segmentation**, Feb 2016 to May 2016

- Used crawler to automatically fetch Chinese news articles online
- Calculated condensation degree and freedom degree of each possible word, used n-gram algorithm to divide Chinese sentence into words
- Increase correct rate by introducing word frequency to segmentation decision

#### **Cognitive Style's influence on Flanker Effect**, Sep 2015 to Jan 2016

##### *Final Design Project of Experimental Psychology*

- Designed an experiment to investigate field-independence / field-dependence cognitive style's influence on flanker effect
- Coded program with E-prime, collected behavioral experiment data and conducted data analysis with SPSS and R
- Revealed decoupled structure with object cognition and subject sensing

#### **PKU Hackathon**, Apr 2015 to Apr 2015

- Investigated deep learning algorithms for face recognition
- Developed an iOS diary application which needs face to unlock and record current emotion automatically by extracting features from face

## **WORK EXPERIENCE**

#### **Peking University, PKU Helper Team**, Sep 2015 to Present

##### *Senior iOS Developer, Software Engineer*

- Developed and maintained iOS app PKU Helper for PKU campus life (10k+ users)

#### **Teaching Assistant, Assisted Prof. Jun Sun in Introduction to Computation**, Sep 2016 to Jan 2017

- Designed problem set every two weeks for student practice
- Instructed students for practice set
- Assisted professor for mid-term and final exam

## **SKILLS**

**Programming:** Python, C/C++, Matlab, JAVA, SQL, JavaScript, Scheme, Swift, Linux, R, SAS

**Language:** Native in Mandarin, proficient in English (TOEFL 105/120)