

# YUWEI (VICTORIA) QIU

Tsinghua University, P.R. China

Homepage: <https://victoriaqiu.github.io/>

Email: [qyw14@mails.tsinghua.edu.cn](mailto:qyw14@mails.tsinghua.edu.cn) | [vic\\_thustudy@126.com](mailto:vic_thustudy@126.com)

## EDUCATION

### Tsinghua University

Beijing, China

Department of Electronic Engineering

Aug. 2014 – Jun. 2018 (Expected)

- Senior undergraduate, GPA: 88/100 (3.82/4)
- Person of the Year 2017 Award (*top 5 in 3300*)
- Outstanding Research Assistant by *Stanford EE* (*top 4 in 146*)

#### Featured Courses

Student Research Training Project (*top 10 in 500*)      Production Practice Training (*top 5 in 262*)  
Image Processing (*top 1 in 90*)      Computer Graphics (*top 1 in 40*)      Media & Recognition (*top 10 in 233*)  
Advanced Matlab Programming (*top 10 in 262*)      C/C++ Computer Program Design (*top 10 in 262*)

### University of Pennsylvania

Philadelphia, PA

GRASP Laboratory, Department of Computer and Information Sciences

Summer 2017

- Undergraduate Visiting Research Assistant with *Prof. Jianbo Shi*

## PUBLICATIONS

- [1] **Yuwei Qiu**, Huimin Ma, and Lei Gao.  
“Hardness Prediction for Object Detection Inspired by Human Vision”  
*9<sup>th</sup> International Conference on Image and Graphics (ICIG 2017)*. Accepted as oral presentation (~8%).
- [2] Lei Gao, Huimin Ma, Chenhao Liu, and **Yuwei Qiu**.  
“A Human Visual Bionic Framework for Object Recognition”  
To appear in the *Journal of Image and Graphic*.

## HONORS AND AWARDS

- Person of the Year 2017 Award by Tsinghua University (*top 5 in 3300*) 2017
- Hong Qian Comprehensive Scholarship (*top 15 in 262*) 2017
- *Three times* Annual Scholarship for Outstanding Research, Art and Social Performances (*top 15 in 262*) 2015 – 2017
- Outstanding Research Assistant by *Stanford EE* (*top 4 in 146*) 2015
- Outstanding Team Captain (*top 1 in 1200 participants*),  
First prize for Global Business Leadership Competition at *Intel, Silicon Valley* (*top 1 in 126 teams*) 2015

## RESEARCH EXPERIENCE

### University of Pennsylvania, GRASP Laboratory

Philadelphia, PA

Research Assistant with *Prof. Jianbo Shi*

#### Skeleton Body Pose Prediction Based On First Person Videos

07. 2017 – Present

- Constructed a multimedia model of team activities from ego-centric sequences.
- Reconstructed 3D background utilizing Structure from Motion, Multi-View Stereotype and Bundle Adjustment.
- Concatenated a joint-tracking CNN with LSTM to estimate and predict skeleton body pose of camera-holder, utilizing temporal third-person information captured by other team members.
- Applied proposed framework to ego-centric videos of real cases to show effectiveness.

### Tsinghua University, 3D Image Simulation Laboratory

Beijing, China

Research Assistant with *Prof. Huimin Ma* (Deputy Secretary-General of China Graphics Society)

#### Hardness Prediction for Object Detection inspired by Human Vision

06. 2016 – 01. 2017

- Predicted the performance of object detection algorithms by finding regular patterns of eye-tracking data.
- Proposed novel eye-tracking features fused with feature maps of CNN to utilize complex human visual perception.
- Generated eye-tracking features directly with a jointly trained CNN to replace laborious eye-tracking experiments.
- Contributed to a first-authored paper, which has been accepted as oral presentation in ICIG 2017.

#### Characterizing Psychological Problems via Interactive Devices

09. 2017 – Present

- Expect to recognize patterns of mental diseases in behavioral and biometric data from interactive devices.
- Analyzed the data collected from psychology experiments and diseases institutes equipped with ML/DL methods.
- Still in progress. Further apply this framework to improve diagnosis of mental sickness.

**Tsinghua University**, Intellectual Graphs and Texts Processing Laboratory  
Research Assistant with *Prof. Shengjin Wang*

**Beijing, China**

**End-to-End Printed Chinese Text Recognition**

12. 2016 – 06. 2017

- Designed an end-to-end deep multi-pathway CNN for Chinese text recognition with 3500+ character categories.
- Utilized spatial information, logogram usage in Chinese.
- Connected with a Conditional Random Field model to utilize semantic structure, boosting accuracy by 3%.
- Achieved a precision of 96.8% on CMCC Chinese Database.
- Proposed solution was purchased by China Mobile for product improvement.

**Stanford University**, Department of Electrical Engineering

**Palo Alto, CA**

Participants in a remote project of *Prof. Tsachy Weissman*

**Magnetic Resonance Imaging (MRI) Registration**

10. 2015 – 12. 2015

- Improved MRI registration results by solving problems with information theory and statistical signal processing.
- Experimented with a mutual information based registration method.
- Applied a bias-corrected version of MLE estimator in smooth regime, reducing the Mean Square Error to 1%.
- Completed a technique demo and ranked 4<sup>th</sup> in 146 participants.

---

**PROMINENT COURSE PROJECT**

**Tsinghua University**

**Beijing, China**

Course project in *Media and Recognition*

**Facial Emotion Recognition**

04. 2017 – 05. 2017

- Classified static human face images into emotion categories.
- Adopted VGG-16 and multistage fine-tuned it on open datasets including VGG-Face dataset, FER2013 public Test, FER2013 private Test and CK+.
- Selected to give a presentation to 233 students and ranked 1<sup>st</sup> in 10 teams.

Course project in *Computer Graphics*

**3-D vector text construction and texture mapping**

04. 2016 – 05. 2016

- Constructed 3D Chinese characters and texture mapped with natural scene images.
- Used high-dimensional Bézier curves and B-splines to contour the characters.
- Projected static images onto surfaces of 3D characters using Homography.
- Ranked 1<sup>st</sup> in 40 students.

---

**WORK EXPERIENCE**

**Huawei Research Beijing**

**Beijing, China**

Vision Researcher, Artificial Intelligence Group

11. 2017 – Present

- Applied vision algorithms to real products in World's Top Five Hundred Corporation.

---

**SKILLS**

Professional Computer Skills

- *Excellent in C/C++, Matlab, Caffe, Python, C#, Tensorflow, Pytorch, HTML, OpenCV, OpenGL, Latex.*

Languages

- *Excellent in Mandarin (mother tongue).*
- *Proficient in English (TOEFL iBT 108/120, latest Speaking score 28; GRE verbal 154).*
- *Basic Communication skills in Japanese and French.*

---

**LEADERSHIP ACTIVITIES**

**EE Student Union of Tsinghua EE**

President of External Communication

- Within one year, raised nearly USD 20,000 for financial sponsorship.

Hosts of forums for famous professors from Ivy League

- Delivered interviews with famous professors from Duke University, University of Pennsylvania, University of Michigan and Columbia University.

**Development for Live Broadcasting of 2017 Anniversary Celebration**

Team Leader

- Unprecedented success in building a website for live broadcasting with an all-student team.
- Successfully streamed a live broadcast for 5 hours with over 5000 clicks.

**Ninth(Highest) Level of piano skills certificated by Central Conservatory of Music**