**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)

**Education**

**Tsinghua University** *Beijing, China*

Department of Electronic Engineering Sept. 2014 – Jul. 2018 (Expected)

* Senior undergraduate, GPA: 88/100

**University of Pennsyvania** *Philadelphia, PA*

GRASP Laboratory, Department of Computer and Information Science Summer 2017

* Undergraduate Visiting Research Assistant in *Prof. Jianbo Shi* ’s Group

**Skills**

**Computer Skills**

* Proficient (>2years) C/C++, Matlab
* Familiar (~1year) Python, C#, Latex, Git, Verilog, MIPS Assembly Language, HTML, UNIX
* Deep Learning Tools Caffe, Tensorflow, Pytorch

**English Proficiency**

* TOEFL 108 = **26(Speaking)** + 28(Reading) + 27(Writing) + 27(Listening)
* GRE 321 = **154(Verbal)** + 167(Quantitive) + 3.5(Writing)

**Featured Courses**

* Robotics: Perception(Coursera), Digital Image Processing(A+), Computer Graphics(A+), Media and Recognition(A)
* Advanced Matlab Programming(A+), C/C++ Computer Program Design(A), Data structure and Algorithm Design(A)

**Publications**

1. **Yuwei Qiu**, Huimin Ma, and Lei Gao.

**“Hardness Prediction for Object Detection inspired by Human Vsion”**

In the *9th International Conference of Image Graphics (ICIG 2017)*. Accepted as **oral presentation** (~18%).

1. Lei Gao, Huimin Ma, Chenhao Liu, and **Yuwei Qiu**.

**“A Human Visual Bionic Framework for Object Recognition”**

To appear in *Journal of Graphics, China*.

**Research Experience**

**University of Pennsyvania** *Philadelphia, PA*

*General Robotics, Automation, Sensing & Perception (GRASP) Laboratory*

Research Assistant to ***Prof. Jianbo Shi***

**(a) On-going: Skeleton Body Pose Prediction Based On First Person Videos** 07. 2017 – Present

* Three-dimensional-reconstructed context from highly jittery, blurry and narrow ego-centric frames with Multi-View Stereo.
* Tracked joints with LSTM in first-person videos, to estimate and predict skeleton body pose of camera-holder.
* Experimented with real cases (ego-centric cooking and basketball game videos), showing real-time location and skeleton body pose of camera-holder in three-dimensional context.

**Tsinghua University** *Beijing, China*

*3D Image Simulation Laboratory*

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

**(b) Hardness Prediction for Object Detection inspired by Human Vision** 08. 2016 – 2017.01

* Introduced human factor into object detection to predict the detection hardness.
* Defined novel eye tracking features and eye tracking complexity, to quantify complicated human visual process.
* Computed eye tracking complexity directly with an CNN in spite of laborious eye tracking experiments.
* Predicted object detection failures in *ILSVRC* with a precision of 0.94.
* Contributed to a **first-authored paper**, which has been accepted as **oral presentation** in *ICIG 2017*.

**(c) On-going: Characterizing Psychological Problems via Interactive Devices** 03. 2017 – Present

* Recognized patterns of mental diseases, in behavioral and biometric data from interactive devices.
* Now analyzed data collected from psychology experiments and diseases institutes, experimented ML methods.
* To improve or testify diagnosis of mental sickness with data support.

**Tsinghua University** *Beijing, China*

*Intellectual Graphs and Texts Processing Laboratory*

Research Assistant to ***Prof. Shengjin Wang***

**(d) End-to-End Printed Chinese Text Recognition Based on CNN** 12. 2016 – 2017.06

* Designed an end-to-end framework for Chinese printed text recognition.
* Constructed THU Chinese printed character database (THU Chinese Database), containing 3500+ categories of Chinese characters for both offline training and validation.
* Trained a multi-pathway convolutional neural network, achieved a prevision of 86.8% on THU Chinese Database.
* Proposed solution was **purchased by China Mobile**.

**Stanford University** *Palo Alto, CA*

*Department of Electrical Engineering*

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

**(e) Magnetic Resonance Imaging (MRI) Registration** 10. 2016 – 2016.12

* Improved MRI registration results via connecting the problem to information theory and statistical signal processing.
* Experimented with Maximum Likelihood Estimation approach, a mutual information based registration method.
* Applied a bias-corrected version of MLE estimator in smooth regime, reducing the Mean Square Error to 1% of traditional MLE approach.
* Complete a technique report and demo. Ranked **4th out of 146** participants.

**Project Experience**

**Facial Expression Recognition** Spring 2017

*Course project in “Media and Recognition”*

* Classified static images into eight categories of emotion, including anger, happiness, surprise and fear etc.
* Extracted multiple features including SIFT, HOG, LBP and LPQ, and adopted SVM as classifier.
* Used VGG-16, multistage fine-tuning on various datasets including VGG-Face dataset, FER2013 public Test, FER2013 private Test and CK+.
* Selected to give a presentation and ranked the **1st out of 10** teams.

**3-D vector text construction and texture mapping** Spring 2016

*Course project in “Computer Graphics”*

* Three-dimensional-constructed Chinese characters, texture mapping with natural scene images.
* Used high-dimensional Bézier curves and B-splines to contour the characters.
* Projected static images onto surfaces of three-dimensional characters using Homography.
* Ranked the **1st out of 40** students.

**Image Searching** Summer 2015

*Supervised by* ***Prof. Yongdong Zhang*** *(Chinese Academy of Science, Institue of Computing Technology)*

* Searched with features extracted from input static images for the most similarities.
* Used traditional searching technique local-sensitive hashing.
* Tested the demo on a testset based on PASCAL VOC and attained an accuracy of 90%.

**Awards and Honors**

* **Three times** Tsinghua Annual Undergraduate Scholarship 2015,2016,2017
* **Outstanding Research Assistant** (Stanford EE, remote project) 2015

**Extracurricular Activities**

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

*Team Leader*

* Built up a website for live broadcasting with millions of audience, which none of previous staff have ever achieved
* Successfully live broadcasting for ***5 hours with over 5000 clicks***

**EE Student Union @Tsinghua, EE**

*Chairman in charge of External Communication*

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

**Global Leadership Competition 2015**

*Team Captain*

* Outstanding Team Captain Award
* Won the business design competition (the 1st place), held at Intel, Silicon Valley