Yuwei (Victoria) Qiu

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Education

Tsinghua University *Beijing, China*
Department of **Electronic Engineering** Aug. 2014 – Jun. 2018 (Expected)

- Senior undergraduate, GPA: 88/100 (3.82/4)

Featured Courses

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

University of Pennsylvania *Philadelphia, PA*
GRASP Laboratory, Department of **Computer and Information Sciences** Summer 2017

- Undergraduate Visiting Research Assistant to *Prof. Jianbo Shi*
- Person of the Year award (***top 20 out of 3300 Tsinghua students***)

Selected Honors And Awards

- Hong Qian Comprehensive Scholarship (***top 15 out of 262 Tsinghua students***, awarded for outstanding academic performance and extracurricular achievement)
- ***Three times*** Annual Scholarship for Outstanding Academic, Art and Social Performances (***top ~5% out of 262***)
- Person of the Year awarded by Tsinghua Overseas Research Program (***top 20 out of 3300 Tsinghua students***)
- Outstanding Research Assistant awarded by ***Stanford EE*** (***top 5 out of 146 international students***)
- Outstanding Team Captain, First prize for Global Leadership Competition by ***Intel, Silicon Valley*** (***top 1 out of 1200 international students***)

Publications

[1] **Yuwei Qiu**, Huimin Ma, and Lei Gao.
"Hardness Predictions for Object Detection Inspired by Human Vision"
9th International Conference of Image Graphics (ICIG 2017). Accepted as **oral presentation** (~18%).

[2] Lei Gao, Huimin Ma, Chenhao Liu, and **Yuwei Qiu**.
"A Human Visual Bionic Framework for Object Recognition"
Scheduled to be published in the *Journal of Image and Graphic*.

Work Experience

Huawei Research Beijing *Beijing, China*
Vision Researcher, Artificial Intelligence Group 11. 2017 – Present

- World's Top Five Hundred Corporation.
- Applied vision algorithms like text recognition and face tracking approaches to flexible machines.
- Part of the results were deployed in real products.

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 point-of-view videos to estimate and predict skeleton body pose of camera-holder.
- Experimented with real cases, including 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 factors into object detection to predict the performance of automatic algorithms.
- Defined novel eye-tracking features and Eye Tracking Complexity to quantify complicated human visual process.
- Computed Eye Tracking Complexity directly with a 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 a THU Chinese-printed character database (the THU Chinese Database) containing 3500+ categories of Chinese characters for off-line training and validation.
- Trained a multi-pathway convolutional neural network, achieved a prevision of 96.8% on CMCC 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 by solving problems with 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.

Tsinghua University *Beijing, China*

Course project in "Media and Recognition"

(f) Facial Expression Recognition Spring 2017

- Classified static images into eight categories of emotion, including anger, happiness, surprise and fear etc.
- 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.

Course project in "Computer Graphics"

(g) 3-D vector text construction and texture mapping Spring 2016

- Constructed three-dimensional Chinese characters using 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 **1st out of 40** students.

Skills

Professional Computer Skills

- ***Proficient in*** C/C++, Matlab, Caffe.
- ***Experienced with*** Python, C#, Tensorflow, Pytorch, HTML, OpenCV, OpenGL.

Languages

- ***Excellent in*** English (with TOEFL iBT 108/120, 26 for Speaking).
- ***Basic Communication skill in*** Japanese and French.

Extracurricular Activities

Development for Live Broadcasting of 2017 Anniversary Celebration

Team Leader

- Built a website for live broadcasting with millions of viewers, which no previous staffers have achieved.
- Successfully streamed a live broadcast for ***5 hours with over 5000 clicks***.

EE Student Union @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 of Pennsylvania and Columbia University.