**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

**Featured Courses**

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

**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 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%).

1. 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*.

**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 15 out of 262***)
* Outstanding Research Assistant awarded by ***Stanford EE*** (***top 4 out of 146 international students***)
* Outstanding Team Captain (***top 1 out of 1200+ international students***), First prize for Global Leadership Competition by ***Intel, Silicon Valley*** (***top 1 out of 126 teams***)
* Person of the Year 2017 awarded by Tsinghua Overseas Research Program (***top 20 out of 3300 students***)

**Research Experience**

**University of Pennsylvania** *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

* Expect to construct a multimedia three-dimensional model of highly-jittery, blurry, and narrow ego-centric sequences of team activities.
* Three-dimensional-reconstructed background information with Structure from Motion, Multi-View Stereotype and Bundle Adjustment.
* Jointly trained joint-tracking CNN with LSTM to estimate and predict skeleton body pose of camera-holder, utilizing temporal third-person information captured from team members as weak supervised information.
* Applied proposed framework to ego-centric videos of real cases, like cooking and basketball, showing camera holder’s location and skeleton body pose in three-dimensional context. Still experimenting with audio track.

**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

* Predicted the performance of object detection algorithms by finding regular patterns of eye tracking data.
* Fused novel eye tracking features into CNN to utilize complicated human visual traits.
* Extracted eye tracking features directly with a jointly trained CNN in spite of laborious eye tracking experiments.
* Predicted object detection failures in *ILSVRC* with a precision of 94.3%.
* 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** 09. 2017 – Present

* Expect to recognize patterns of mental diseases, in behavioral and biometric data from interactive devices.
* Now analyzing data collected from psychology experiments and diseases institutes equipped with ML/DL 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 Neural Networks** 12. 2016 – 2017.06

* Designed an end-to-end framework utilizing joint-trained neural networks 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.
* Utilized semantic information through a Conditional Random Field model.
* 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.
* Completed a technique report and demo and 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 and multistage fine-tuned on various datasets including VGG-Face dataset, FER2013 public Test, FER2013 private Test and CK+.
* Selected to give a presentation and ranked **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.

**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 will be deployed in real products.

**Skills**

**Professional Computer Skills**

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

**Languages**

* ***Excellent in*** Mandarin (mother tongue).
* ***Proficient in*** English (TOEFL iBT 108/120; latest Speaking score 28).
* ***Basic Communication skills 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, University of Pennsylvania, University of Michigan and Columbia University.