YUWEI (VICTORIA) QIU

Tsinghua University, P.R. China
Homepage: https://victoriaqiu.github.io/
Email: qyw14@mails.tsinghua.edu.cn | 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^{th} *International Conference of Image 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 ***Philadelphia, PA***
General Robotics, Automation, Sensing & Perception (GRASP) Laboratory
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 ***Beijing, China***
3D Image Simulation Laboratory
Research Assistant with *Prof. Huimin Ma* (Deputy Secretary-General of China Graphics Society)

Hardness Prediction for Object Detection inspired by Human Vision 08. 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 ***Beijing, China***

Intellectual Graphs and Texts Processing Laboratory

Research Assistant with *Prof. Shengjin Wang*

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 ***Palo Alto, CA***

Department of Electrical Engineering

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

Magnetic Resonance Imaging (MRI) Registration 10. 2016 – 12. 2016

- 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^{th} 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^{st} 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^{st} 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).
- *Basic Communication skills in* Japanese and French.

EXTRACURRICULAR 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