YUWEI QIU

Senior Undergraduate
Department of Electronic Engineering
Tsinghua University, Beijing. China
Email: qyw14 @ tsinghua.edu,cn | vic_thustudy @ 126.com

EDUCATION

Tsinghua University — Beijing, China
B.E, Electronic Engineering — 09. 2014 – 07. 2018

- **GPA**: *8-/100*
- **Related Courses**
  - **Researches:** Computer Graphics *(95/100)*, Student Research Training *(95/100)*
  - **Mathematics:** Calculus A *(95/100)*
  - **Programming:** Advanced Matlab Programming and its Application *(95/100)*, C/C++ Computer Program Design *(94/100)*

PUBLICATION

[1] Yuwei Qiu, Huimin Ma and Lei Gao. "Hardness Prediction for Object Detection Inspired by Human Vision" accepted and to be published in 2017 *International Conference of Image Graphics*.
[2] Lei Gao, Huimin Ma, Chenhao Liu and Yuwei Qiu, "A Human Visual Bionic Framework for Object Recognition", accepted and to be published in *Journal of Graphics.*

RESEARCH EXPERIENCE

University of Pennsylvania, Department of Computer Information Science — Philadelphia, PA
General robotics, Automation, Sensing & Perception(GRASP) Laboratory — 07. 2014 – Present

Research Assistant to Prof. Jianbo Shi

Project: Body Pose Prediction Based On First Person Videos

- Segmented body parts in pixel level from first person videos with complex context and high speed.
- Proposed possible body poses from limited hands gesture with *LSTM*.
- Completed 3-dimensional reconstruction of both environment and body pose from limited first person videos.
- Generated sequences for human body motion proposals.
- Now writing a paper.

Tsinghua University, Department of Electronic Engineering — Beijing, China
3-D Image Simulation Laboratory — 03. 2016 – 11. 2016

Research Assistant to Prof. Huimin Ma, Deputy Secretary-General of China Graphics Society

Project 1: Researches of eye-tracking devices and its applications in computer vision

- Theoretically quantized the human perception over scene content
- Extracted Detection Complexity, which predicts the performance of algorithms in advance
- Predicted object detection failures in *ILSVRC* with a precision of *0.94*
- Contributed to *a first-authored paper*, which has been submitted to *2017 IEEE Conference on Computer Vision and Pattern Recognition*

On-going: Mathematically models of psychological problems based on interactive devices — 11. 2016 – Present

- Designed mental experiments for patients suffering from autism, mania and depression
- Extracted eye-tracking features, gene information and electroencephalogram for data mining
- Now attempting to mathematically model psychological diseases

Tsinghua University, Department of Electronic Engineering — Beijing, China
Intellectual Graphs and Texts Processing Laboratory — 11. 2016 – 06. 2017

Research Assistant to Prof. Shengjin Wang

Project: Text recognition in natural context based on convolutional neural networks

- Aims at optimizing the end-to-end text recognition with convolutional neural networks
- Built up a dataset consist of *3500+ categories* of Chinese characters
- Trained a *multi-pathway network* for Chinese character and sentences consist of *3500+* categories
- Achieved a precision of *86.8%*
- Now writing a paper

Stanford University, Department of Electronic Engineering — Palo Alto, CA

Participants in a remote project of Prof. Tsachy Weissman

12. 2015 – 02. 2016

Remote project: Information theory methods for Magnetic Resonance Imaging

- Explored novel methods for medical image registration
- Connected the registration problem to recent advances in information theory and statistical signal processing
- Applied and optimized methods in information theory to medical image registration
- Completed a research demo and report (ranked *4th/146*)

Tsinghua University, Department of Electronic Engineering — Beijing, China

Project of Computer Graphics

04. 2016 – 06. 2016

Course Project: Three-dimensional vector text construction and texture mapping

- Applied text segmentation in natural scenes with complex context information
- Used high-dimensional Bézier curves or B-splines to fit text in natural scenes
- Constructed and texture mapped three-dimensional models of the text based on two-dimensional graphs
- Ranked *1st/40*

Chinese Academy of Sciences, Institute of Computing Technology — Beijing, China

Research Assistant to Prof. Yongdong Zhang

08. 2015 – 10. 2015

Project: Searching by images

- Searched by local-sensitive hashing
- Extracted pixel-level features from over *100,000 images*
- Tested the demo on *PASCAL VOC* contained 100,000 images and attained an accuracy of *0.9*

SELECTED HONORS

Scholarship and Fellowship

- Tsinghua Scholarship (For outstanding academic, scientific and social achievement) **2015**
- Tsinghua Scholarship (For outstanding social achievement) **2016**

ADDITIONAL INFORMATION

Interests

- Computer vision
- Computer graphics
- Cognitive science
- Robotics
- Machine learning

Computer and Language Skills

- **Languages:**
  MatLab *(20k+ lines)*, C/C++ *(10k+ lines)*, **Python, C#, Verilog, MIPS Assembly Language, LaTeX, HTML, Linux**
- **Tools:**
  Caffe, Tensorflow, Pytorch
- **English Skills:**
  TOEFL: *108* = 28(Reading) + 27(Listening) + *26(Speaking)* + 27(Writing)
  GRE: *321* = *154(Verbal)* + 167(Quantitative) + 3.5(Analytical Writing)

EXTRACURRICULUM ACTIVITIES

EE Student Union

Chairman in charge of ***External Communication Department of Student Union @THUEE***

- Lead a team who raised nearly *USD 20,000* for financial sponsorship

Development for Live Broadcasting of 2017 Anniversary Party in EE department

Team leader

- Built up a website within 3 weeks for live broadcasting with millions of audience, which none of previous staff have ever achieved
- Successfully live broadcasting the anniversary party lasting for *5 hours with over 5000 clicks*

Global leadership competition 2015

Team captain

- Outstanding team captain

- Won the business design competition held at Intel, Silicon Valley, *the 1st place*