YUWEI (VICTORIA) QIU

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EDUCATION

Tsinghua University ***Beijing, China***
Department of Electronic Engineering: Senior undergraduate, Overall GPA: 3.8/4.0 Aug. 2014 – Jul. 2018
Featured Courses
Student Research Training Project Practicum Image Processing Computer Graphics
Media & Recognition Advanced Matlab Programming C/C++ Computer Program Design

University of Pennsylvania ***Philadelphia, PA***
GRASP Laboratory, Department of Computer and Information Sciences Summer 2017
- Undergraduate Visiting Research Assistant with *Prof. Jianbo Shi*

Carnegie Mellon University ***Pittsburgh, PA***
The Language Technology Institute, School of Computer Science Aug. 2018 – Jul. 2019 (Expected)
Master of Computational Data Science (MCDS)
Featured Courses
Introduction to Computer System

PUBLICATIONS

[1] **Yuwei Qiu**, Huimin Ma, and Lei Gao.
"Hardness Prediction for Object Detection Inspired by Human Vision"
9^{th} *International Conference on Image and Graphics (ICIG 2017)*. Accepted as oral presentation (~8%).

[2] Lei Gao, Huimin Ma, **Yuwei Qiu** and Chenhao Liu
"A Human Visual System Inspired Database For Object Detection"
To appear in the *Journal of Image and Graphics*.

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

Tsinghua University, Intellectual Graphs and Texts Processing Laboratory ***Beijing, China***
Graduation Project advised by *Prof. Shengjin Wang*
Multi-label Image Classification 03. 2018 – 06. 2018
- Aimed to propose a Deep Learning framework for multi-label natural context scenes classification.
- Concatenated region proposal network and feature pyramid network with VGG, ResNet, DenseNet and Dual Path Network (ILSVRC2017 classification champion) to introduce weak detection information.
- Experimented on PASCAL2012 and MSCOCO2014 respectively increasing mean average precision by 2.2% and 1.3% compared to the-state-of-the-art method.
- Outstanding graduation paper by Tsinghua University.

University of Pennsylvania, GRASP Laboratory ***Philadelphia, PA***
Research Assistant with *Prof. Jianbo Shi*
Skeleton Body Pose Prediction Based On First Person Videos 07. 2017 – 09. 2018
- 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, 3D Image Simulation Laboratory ***Beijing, China***
Research Assistant with *Prof. Huimin Ma* (Deputy Secretary-General of China Graphics Society)

Hardness Prediction for Object Detection inspired by Human Vision 06. 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.

Tsinghua University, Intellectual Graphs and Texts Processing Laboratory ***Beijing, China***
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, Department of Electrical Engineering ***Palo Alto, CA***
Participants in a remote project of *Prof. Tsachy Weissman*

Magnetic Resonance Imaging (MRI) Registration 10. 2015 – 12. 2015

- 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 – 01. 2018

Momenta Beijing ***Beijing, China***
Software Engineer 05. 2018 – 07. 2018

SKILLS

Professional Computer Skills

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

Languages

- *Excellent in* Mandarin (mother tongue).
- *Proficient in* English (TOEFL iBT 108/120, latest Speaking score 28/30).
- *Basic Communication skills in* Japanese and French.

LEADERSHIP ACTIVITIES

EE Student Union of Tsinghua EE
President of External Communication

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