Ru Wang

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EDUCATION

University of California, San Diego — *San Diego, CA*
M.S. in Computer Science — *Sep 2019 - Jun 2021 (Expected)*

Shanghai Jiao Tong University — *Shanghai, China*
B.S. in Information Engineering, GPA: 3.71/4.00 — *Sep 2015 - Jun 2019*

PUBLICATION

Zhuoran Song, **Ru Wang**, Dongyu Ru, Zhenghao Peng, Hongru Huang, Hai Zhao, Xiaoyao Liang, Li Jiang, "Approximate Random Dropout for DNN training acceleration in GPGPU," 2019 Design, Automation & Test in Europe Conference & Exhibition (DATE)

RESEARCH PROJECTS

GrandpARents: Assistive System for Elderly People with Hearing/Vision Loss — *Oct 2019 - Present*
Advised by Prof. Nadir Weibel, CSE, UCSD
- Developed an AR application on HoloLens with a team to help elderly people cope with their daily tasks,
- Developed an automatic subtitle generator for 1-on-1 conversation using Azure Cognitive Services.

On-Shelf Product Image Generation for Product Classification using GAN — *Mar 2019 - May 2019*
Advised by Dr. Cong Yang and Prof. Weiyao Lin, Clobotics
- Built a dataset of 50k+ real product images with a self-built turntable and camera system,
- Trained a Cycle-GAN model that can generate on-shelf product images using our dataset,
- The generated 'fake' on-shelf product images boosted our product classification model's recall by 0.1.

ThumbTrak: Continuous One-handed Thumb-on-fingers Input — *Jul 2018 - Jan 2019*
Advised by Prof. Cheng Zhang, Information Science, Cornell University
- Built the hardware prototype with 2 IMUs and a proximity sensor to model the user's hand,
- Designed an algorithm to reconstruct the movement of thumb on fingers based on projective transformation,
- Developed a gesture recognition method for text entry; the accuracy of text entry with our system is 0.91.

Approximate Random Dropout for DNN training acceleration in GPGPU — *Dec 2017 - May 2018*
Advised by Prof. Li Jiang, Advanced Computer Architecture Lab, SJTU
- Designed a time-efficient dropout algorithm to reduce useless computation in matrix multiplication,
- Implemented a fully-connected layer and convolution layer with our dropout algorithm in Caffe,
- Our fully-connected layer is 2X faster than original in training phase, with acceptable accuracy drop in testing phase.

Virtual Dressing System — *May 2017 - Nov 2017*
Advised by Prof. Weiyao Lin, Institute of Media, Information and Network, SJTU
- Integrated depth information from Kinect with 2D pose estimation from OpenPose to refine 3D human pose,
- Designed an efficient algorithm to estimate the 3D position of occluded body parts,
- Developed a 3D pose collection and annotation system with Unity, and built an RGBD human pose dataset.

WORK EXPERIENCE

Tencent — *Beijing, China*
Software Engineering Intern — *Jun 2019 - Aug 2019*
Worked on a Spark-based real-time stream processing system for ads.
- Developed an online stream receiver for the system to access data from multiple real-time message queues,
- Optimized the system to enable a higher level of parallelism,
- Reduced batch interval from 1min to 5s without data consumption lag.

Clobotics *Shanghai, China*

Software Engineering Intern *Dec 2018 - Jun 2019*

Worked on a computer vision-based system that can recognize the drinks in a beverage cooler and analyze the sales.

- Developed a software to automate labeling task creation, model updating and model deployment,
- Developed an Android application that can instruct and assist users to install and maintain the system,
- Developed a web server with Flask for interaction between maintainers and the system.

TECHNICAL SKILLS

Programming: Python, C/C++, C#, Java, Scala, LaTeX, HTML/CSS, Git

Software & Tools: **ML/DL:** PyTorch, Scikit-Learn

Others: Spark, Unity, Android Studio, Arduino, Adobe Illustrator