

Ru Wang

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EDUCATION

University of California, San Diego

M.S. in Computer Science

San Diego, CA

Sep 2019 - Jun 2021 (Expected)

Shanghai Jiao Tong University

B.S. in Information Engineering, GPA: 3.71/4.00

Shanghai, China

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

On-Shelf Product Image Generation for Product Classification using GAN

Mar 2019 - May 2019

Advised by Cong Yang and 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 Cheng Zhang, Information Science, Cornell University

- Built the hardware prototype with 2 IMUs and a proximity sensor that can model the user's thumb,
- Designed and implemented a method based on relative rotation to reconstruct thumb-on-fingers movement accurately through perspective transformation,
- Developed a gesture recognition method combining SP+ and KNN to recognize letters and collected over 1,300 letter templates for text entry; the accuracy of text entry with our system is 0.91,
- Developed a testing system with Unity for user study including text entry test and Fitts' law test.

Approximate Random Dropout for DNN training acceleration in GPGPU

Dec 2017 - May 2018

Advised by 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 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 find the most possible position and depth estimation for occluded body part,
- Developed a 3D pose collection and annotation system with Unity, and built an RGBD human pose dataset.

WORK EXPERIENCE

Tencent

Software Engineering Intern

Beijing, China

Jun 2019 - Aug 2019

Worked on a Spark based offline 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*Software Engineering Intern**Shanghai, China**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 PC 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