

Ru Wang

Shanghai Jiao Tong University, 800 Dongchuan Rd., Shanghai, China

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Education

Shanghai Jiao Tong University (SJTU)

Shanghai, China

B.E. IN ELECTRONIC ENGINEERING

Sep. 2015 – Jun. 2019 (Expected)

- Major in Electronic Engineering and minor in Computer Science.
- Focus on digital multimedia, machine learning and computer networks.
- Major GPA: **88/100**.

Publications

Approximate Random Dropout for DNN training acceleration in GPGPU

Shanghai, China

ZHUORAN SONG, **RU WANG**, DONGYU RU, ZHENGHAO PENG, HONGRU HUANG, HAI ZHAO, XIAOYAO LIANG, LI JIANG

2018

Accepted to *DATE (Design, Automation and Test in Europe) 2019*.

Honors & Awards

Academic Progress Scholarship (Junior Year)

Shanghai, China

SHANGHAI JIAO TONG UNIVERSITY

Nov. 2017

Research Projects

ThumbTrak

Cornell University, Ithaca, NY

ADVISOR: PROF. CHENG ZHANG

Jul. 2018 - PRESENT

- Developed algorithms to track thumb's movement on fingers with 2 IMU sensors on thumb and wrist, respectively.
- Co-designed the form factors to mount the sensors on and enhance user's wearing experience.
- Developed a robust method for tap/touch and remove detection for thumb-on-fingers interaction with gyroscope and proximity sensor.
- Developed a perspective-transformation-based mechanism to reconstruct thumb's moving trajectory in 2D space for drawing application.
- Developed an euler-angle-based classification method using SVM to recognize which part on the finger the thumb is interacting with.

Neural Network Acceleration Using Approximate Random Dropout

SJTU, Shanghai

ADVISOR: PROF. LI JIANG, ADVANCED COMPUTER ARCHITECTURE LAB (ACA)

Dec. 2017 - May. 2018

- Implemented a time-efficient matrix multiplication approach with reduced computation, given periods to skip.
- Implemented inner-product layer and convolution layer with approximate random dropout feature on Caffe.
- Inner-product layer with our dropout feature is 2 times faster than original inner-product layer, with acceptable accuracy drop.
- Applied approximate random dropout on RNN to accelerate the training phase.

Virtual Dressing System

SJTU, Shanghai

ADVISOR: PROF. WEIYAO LIN, INSTITUTE OF MEDIA, INFORMATION AND NETWORK (M.I.N)

May. 2017 - Sep. 2017

- Integrated depth information of human skeleton (from Kinect V2) with human keypoints predictions from OpenPose.
- Implemented an efficient algorithm to merge the skeleton data from 2 sources to optimize the precision of human skeleton.
- Developed a 3D human keypoints collection system to capture precise human skeleton data (both 2D and 3D) and segmentation mask.
- Developed a simple and efficient human keypoints correction system with Unity3D and built a precise RGBD single person keypoints dataset.

RGBD-based Single Person 3D Pose Estimation

SJTU, Shanghai

ADVISOR: PROF. WEIYAO LIN, INSTITUTE OF MEDIA, INFORMATION AND NETWORK (M.I.N)

May. 2018 - PRESENT

- Optimized popular human keypoints dataset to adapt to single pose estimation scene.
- Achieved better performance on complicated and self-occluded pose by fine tuning on our RGBD dataset (only use 2D information).
- Working on a novel 3D pose estimator using voxelized depth frame and 3D-convolution.

Driving Cognitive Workload Analysis based on RNN

SJTU, Shanghai

ADVISOR: DR. NA RUAN

Mar. 2018 - PRESENT

- Built dataset with unified workload rating by clustering individual data including bio-information and self-ratings.
- Modeled sequential driving workload based on RNN.
- Working on the integration of driving workload evaluation system and VANET information.

Extracurricular Activities

SJTU GOA (Go-Abroad Association)

Shanghai, China

DIRECTOR OF PUBLICITY DEPARTMENT

Sep. 2017 - PRESENT

GOA is an official association in SJTU, dedicating in providing support and help for studying abroad.

- In charge of the production of posters and paintings.
- Publicized recent activities such as lectures or workshops related to application and career planning.

BTB x POP | Dance Installation Art

Shanghai, China

VOLUNTEER

Dec. 2017

The pop-up dance installation created and performed by Fania Grigoriou, Chris Jäger, Garth Johnson, and Ingrid Kapteyn, produced by Beyond the Bund.

- Helped to arrange the stage and operate the devices.

chi K11 Art Space

Shanghai, China

VOLUNTEER

Dec. 2016

The art space holds regular art exhibitions, various forums for artists and unexpected opportunities for general public to get to know them.

- Guided the audience and explained the artworks for the audience.

Skills

Programming Languages Python, C/C++, C#, JAVA, Lua, Matlab

Practical Skills \LaTeX , HTML/CSS, jekyll, Git

Deep Learning Frameworks PyTorch, Caffe, Torch, TensorFlow

Design Toolkits Adobe Illustrator, Photoshop, Rhino