

# Ru Wang

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

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## Education

### Shanghai Jiao Tong University (SJTU)

Shanghai, China

B.S. IN INFORMATION ENGINEERING

Sep. 2015 – Jun. 2019 (Expected)

- Major in Information Engineering, and Minor in Computer Science
- Focus on digital multimedia, machine learning and computer networks
- Major GPA: **88.12/100**

## Publications

### Approximate Random Dropout for DNN training acceleration in GPGPU

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

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

## Research Projects

### ThumbTrak

Cornell University, Ithaca, NY

ADVISOR: PROF. CHENG ZHANG, INFORMATION SCIENCE

Jul. 2018 - PRESENT

- Developed angle-based method to reconstruct thumb's trajectory on fingers through perspective transformation.
- Co-designed form factors to mount sensors on user's hand and enhance user's experience.
- Developed a testing system with drawing task, Fitts' Law task and Text entry task for user study.

### Neural Network Acceleration Using Approximate Random Dropout

SJTU, Shanghai

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

Dec. 2017 - May. 2018

- Developed a time-efficient dropout algorithm to reduce useless computation in matrix multiplication.
- Implemented Approximate Random Dropout algorithm in fully-connected layer and convolution layer with Caffe.
- Result: Fully-connected layer with our dropout method is 2X faster than original, with acceptable accuracy drop.

### 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 (from Kinect V2) with 2D pose estimation from OpenPose to refine 3D skeleton.
- Developed an efficient algorithm to find most realistic depth estimation for occluded body part.
- Developed 3D pose collection system and data annotation system with Unity3D, and built an RGBD human pose 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

- Developed a fast, single-person 2D pose estimator based on state-of-the-art methods using our dataset.
- Working on a novel 3D pose estimator using voxelized depth frames and 3D-convolution.

### Driver's 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.
- Developed an RNN-based method to model sequential driving workload.

## Internships

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### Clobotics

Shanghai, China

SOFTWARE ENGINEER INTERN

Nov. 2018 – PRESENT

- Currently working on the development of a novel computer vision-based system that can recognize the drinks in a beverage cooler and analyze the sales and user behavior. My job is to optimize the performance and user experience of the system.

## Honors & Awards

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### Academic Progress Scholarship (Nov. 2017)

Shanghai, China

## Extracurricular Activities

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### SJTU GOA (Go-Abroad Association)

Shanghai, China

DIRECTOR OF PUBLICITY DEPARTMENT

Sep. 2017 - May. 2018

*GOA is an official association in SJTU, dedicating in providing support to students desiring to study abroad.*

- Responsible for producing posters and paintings.
- Publicized recent activities such as lectures and workshops related to graduate applications and career planning.

### BTB x POP | Dance Installation Art

Shanghai, China

VOLUNTEER

Dec. 2017

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

- Helped arrange stage and operate 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 audience and explained artworks.

## Skills

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**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