

Ru Wang

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EDUCATION

University of California San Diego

M.S. in Computer Science, GPA: 3.86/4.00

La Jolla, 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

PUBLICATIONS

Conference Papers:

- [1] Danilo Gasques, Janet Johnson, Tommy Sharkey, Yuanyuan Feng, **Ru Wang**, Zhuoqun Robin Xu, Enrique Zavala, Yifei Zhang, Wanze Xie, Xinming Zhang, Konrad Davis, Michael Yip, Nadir Weibel. ARTEMIS: A Collaborative Mixed-Reality System for Immersive Surgical Telementoring. *Accepted to CHI '21*
- [2] 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. *Design, Automation & Test in Europe Conference & Exhibition (DATE), 2019.*

RESEARCH PROJECTS

Online Learning System that Provides Real-time Cognitive Feedback

Oct 2020 - Present

Advised by Prof. Xinyu Zhang, UCSD ECE

- Led the project and built a system prototype to synchronize gaze heatmap across teacher end and student end,
- Developed an active query and classification mechanism to detect students' confusion state on the fly.

Gazescape: A Video Conferencing System that Improves Turn-taking Experience

Jul 2020 - Present

Advised by Prof. Nadir Weibel, UCSD CSE

- Led the project and developed an SFU (Selective Forwarding Unit) based video meeting application with Mediasoup,
- Integrated web-cam based eye tracking, and designed visualizations of gaze direction for different social intentions,
- Conducted pilot studies of brainstorming tasks for system evaluation, and preparing to submit this work to CSCW.

Adaptive System for Cognitive Workload Mitigation using Mobile EEG Headset

Jul 2020 - Present

Advised by Prof. Xinyu Zhang, UCSD ECE

- Led the project and developed a closed-loop system with MUSE EEG headset for cognitive workload mitigation,
- Developed a ResNet+LSTM model for workload level classification, with EEG STFT spectrogram as input,
- Our workload classification model achieved over 95% accuracy.

ARTEMIS: Augmented Reality Technology-Enabled reMote Integrated Surgery

Jul 2020 - Present

Advised by Prof. Nadir Weibel, UCSD CSE

- Conducted cadaver studies in a local hospital to evaluate the system performance,
- Observed and analyzed surgeons' communication behaviors in different surgical procedures,
- Designed study protocols for user training and system testing in response to COVID-19.

On-Shelf Product Image Generation for Product Classification using GAN

Mar 2019 - May 2019

Advised by Dr. Cong Yang & Prof. Weiyao Lin, Clobotics Co., Ltd. & SJTU

- Built a dataset of 50k+ real product images with a self-built turntable and camera array,
- Developed a Cycle-GAN based model that can generate on-shelf product images trained on our dataset,
- The generated 'fake' on-shelf product images improved the recall of our product classification model by 10%.

ThumbTrak: Continuous One-handed Thumb-on-fingers Input

Jul 2018 - Sep 2018

Advised by Prof. Cheng Zhang, Cornell Information Science

- Led the project and built the hardware prototype with 2 IMUs and a proximity sensor to track the user's thumb,
- Designed an algorithm to reconstruct the movement of thumb on fingers based on relative orientation,
- Developed a gesture recognition algorithm based on SP recognizer for text entry, achieved 92% accuracy.

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 unnecessary computation in matrix multiplication,
- Implemented fully-connected layer and convolution layer with proposed dropout algorithm in Caffe,
- The fully-connected layer with proposed dropout method is 2X faster in training phase, with negligible accuracy drop.

WORK EXPERIENCE

Weibel's Lab, UCSD CSE

La Jolla, CA

Research Assistant (GSR)

Jul 2020 - Sep 2020

Worked on ARTEMIS project, under the supervision of Prof. Nadir Weibel.

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 an intelligent IoT 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 system maintenance.

HONORS & AWARDS

Overseas Research Scholarship (First Class) Shanghai Jiao Tong University

2019

Academic Progress Scholarship Shanghai Jiao Tong University

2017

TECHNICAL SKILLS

Programming:Python, C/C++, C#, JavaScript, Java, Scala, \LaTeX , HTML/CSS, Git**Software & Tools:****ML/DL:** PyTorch, Scikit-Learn**Others:** Unity, Android Studio, Arduino, Adobe Illustrator, Spark