

# Yiqiao Qiu

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## EDUCATION

### University of California, San Diego

La Jolla, US | Sept 2022 – Dec 2023

MASTER OF SCIENCE IN COMPUTER SCIENCE AND ENGINEERING

### Sun Yat-sen University

Guangzhou, China | Sept 2018-Jun 2022

BACHELOR OF ENGINEERING IN COMPUTER SCIENCE AND TECHNOLOGY | Major GPA:3.94/4.0, (91.2/100, TOP 10%)

Major Coursework: C/C++ Programming; Data Structures and Algorithms; Operating Systems; Computer Networks

## WORK EXPERIENCE

### BYTEDANCE | VIDEO ALGORITHMS ENGINEER INTERN

Shenzhen, China | Nov 2021 - Apr 2022

- **Built and Optimization of the architecture of DNNs** for real-time Video Super-Resolution(SR) and Facial Landmark Detection. Got **43% improvement of the PSNR gain for SR** and **67% decreasing for NME loss for Landmark** in offline and online testing (SR:2M images, Landmark:100k images).
- **C++ Development** of Multi-Frame path in SR node and Landmark Detection node in ByteDance RTC video engine, including using **multi-threads concurrency and sharing memory buffers for communication**, **accelerated Multi-Frame SR processing by 2.3 times faster** than trivial "for-loop". Together with previous trained DNN models being used in live streaming in **Douyin, Tiktok and Lark**.
- Using **Android Studio and CMake** to compile and run **Unit-Tests** APP for RTC engine on Android devices.
- Surveyed and reproduced four baselines for **Image Matting**.

### DMAI | COMPUTER VISION RESEARCHER INTERN

Guangzhou, China | July 2021 - Oct 2021

- Optimized lite models for Detection & Classification, and OpenSet Recognition applied, **optimize test mAP to 99.5%** for cards detection, and **solve 95% bad cases, achieved 99% test precision** for cards classification.
- Development of a PyTorch based Distributed Generalized Training pipeline(**pip install dldtrainer**), widely used in DMAI research center to simplify the procedure of developing new DNN models.

## PUBLICATION & RESEARCH EXPERIENCE

### SUN YAT-SEN UNIVERSITY | RESEARCH ASSISTANT

Guangzhou, China | Sept 2020 - Nov 2021

- **Computer Vision:** Explore **self-attention mechanism** application on **Continual Semantic Segmentation**, to learn new classes and remember old classes, got **SOTA result**. Under review in Journal: Pattern Recognition as the **first author**. *SATS: Self-Attention Transfer for Continual Semantic Segmentation*, <https://arxiv.org/abs/2203.07667>
- **Natural Language Processing:** Reproduce code of four baselines for **cross-domain text sentiment classification** on Reviews Dataset. Under review in Journal: Information Processing and Management as the **second author**. *TDAN: Topic Driven Adaptive Network for Cross-Domain Sentiment Classification*, <https://arxiv.org/abs/2111.14094>

## PROJECTS

### INSTANT(GROUP) ↗

Go, REDIS, MONGODB

- Developing Back-End of the system, including low-level API to execute MongoDB queries/written and high-level API that executes the input command and sends the retrieved data to the front-end using **web socket**.
- Implemented a **Fan Out on Write** inbox using **Go, MongoDB** to retrieve userfeed, decreasing time to fetch data compared to "Fan Out on Read"(FOR) by **over 3 times**. Built hierarchy **web session cache system with Redis and MongoDB**, decreasing time to fetch data comparing to "FOR" by **over 10 times**.

### OPERATING SYSTEM ↗

C, C++, x86 ASM, SHELL

- Developing a simple Operating System that can run on a bare virtual machine, including a command shell, boot-sector module, a basic core module, a process scheduling module, and a FAT12 file system.

## SKILLS

Languages: C/C++, Python, Go, shell, CUDA, MySQL,  $\LaTeX$ , x86 ASM, Matlab, Verilog

Tools/Database: Linux System, Git, Docker, MongoDB, Redis, SQL, CMake, OpenMP, PyTorch, Tensorflow, numpy, PIL