Tianyu Sun

CONTACT INFORMATION

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EDUCATION

University of California, San Diego, La Jolla, CA, USA
M.S., Computer Science GPA: 3.85/4.0 **Sept. 2019 – Mar. 2021(Expected)**
University of Science and Technology Beijing, Beijing, China
B.E., Computer Science **Aug. 2015 – June 2019**

RELEVANT PROFESSIONAL EXPERIENCE

NEC Laboratories America
Research Intern **Oct. 2020 – Present**

- Working on multimodal data analysis for cyber-physical systems.

Aibee US
Research Intern **June 2020 – Sept. 2020**

- Designed and implemented a model that improves the vehicle Re-ID performance by considering pose. Increased performance from 85.4% to 97.3% on TPR@FPR=0.01. Converted the PyTorch model to a Caffe model and shipped it to intelligent parking lot production with 5 engineers.
- Developed an internal tool for new car model discovery using Re-ID architecture.

Tencent
Research Intern **Dec. 2018 – Aug. 2019**

- Participated in Virtual Host project, which aims at generating a virtual host for game streaming and weather broadcasting. Developed modules for face segmentation and alignment. Used NumPy and OpenCV with 4 engineers. Module adopted by a million-DAU mobile application.
- Worked on developing a robust and efficient system for generating realistic videos with generative adversarial networks. Proposed a stat-of-the-art face reenactment model. Used PyTorch with a 3-researcher team.

National Laboratory of Pattern Recognition
Institute of Automation, Chinese Academy of Sciences
Research Intern **June 2017 – Sept. 2018**

- Proposed a method of increasing the accuracy of gait recognition by heightening the frame rate with generative adversarial networks. Used TensorFlow with a 4-researcher team. The publication can be seen in *Frame-GAN*.
- Segmented human parts of a large Person Re-ID dataset with more than a million images with DensePose. Extracted features of the images with ImageNet Pre-trained models for further research. Used TensorFlow with a 2-researcher team.

SELECTED PROJECTS

Lego-Serverless Distributed Platform

- Developed Lego-Serverless Platform, an event handling and function creation platform for modern serverless services, with a 4-engineer team using Python.
- Designed a two-level load balancing mechanism, a high-level round-robin load balancer, and a middle-level Raft load balancer. Responsible for implementing data pipeline and high-level load balancing. Designed and developed data infrastructure based on Kafka and CouchDB.
- Lego-Serverless provides RESTful API for function and event CRUD. Additional management functions like user authentication and function authorization are supported too. Platform can handle 2,000 QPS based on single-node testing on AWS EC2 instance.

Distributed Storage System

- Built a distributed storage system based on Raft consensus algorithm using Golang.
- Implemented leader election, file replication, and data persistence mechanisms. Designed RPC for communication between nodes. A crash recovery mechanism is implemented as well.

SKILLS

Frameworks, Databases and Tools
Kafka, Docker, Git, AWS, PyTorch, TensorFlow, OpenCV, MySQL, MongoDB, Spark, Node.js

Programming Languages
Python, C++, C, Golang, JAVA, SQL, Haskell