# Qianli Ma

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## EDUCATION BACKGROUND

**National University of Singapore Master** 2022.8 – Present

- Major: Computer Science

**Zhejiang University Bachelor 3.80/4** 2018.9 – 2022.7

- Major: Electronic Science and Technology  Shannon elite class of Information Science and Electronic Engineer College
- Minor: Intensive training Program of Innovation and Entrepreneeyrship(ITP)

## WORK & INTERNSHIP EXPERIENCE

**Huawei 2012 Lab** Distributed Parallel Lab 2021.7 – 2021.12

Algorithm Engineering Internship Hangzhou

- Contributed code to Mindspore, a full-scene deep learning developing framework; Developed three new features for Mindspore Lite.
- Implemented and iterated the Log system of Mindspore on x86 platform based on Glog.
- Accomplished the GPU support for OpenCL of Mindspore, developed GPU operators of Mindspore core.
- Completeed Mindspore Lite OpenGL texture passing core code.
- Mindspore Lite partial GPU arithmetic performance optimization.
- Technology Stack:C++,OpenCL.OpenGL,Cmake,Python

**SenseTime** Large model training 2021.12 – 2022.6

Algorithm Researcher Internship Hangzhou

- Participated in the development of large-scale distributed machine learning training framework(sensetime spring) of Shangtang Technology, and participated in research related to machine learning systems.
- Support for large model landing for target detection (Vision Transformer, Swin Transformer, etc.), implementation of Shangtang's generic target detection framework POD using pytorch distributed data parallel training and hybrid fine-reading training.
- Involved in MLops related work, machine learning cloud platform development, supporting model lifecycle management database.
- Technology Stack:Python,C++,Cuda,Pytorch,go,Nebula DB

**HPC-AI Technology** 2022.7 – Present

Machine Learning System Engineeer Singapore

- Participated in the development of colossal-AI,A Unified Deep Learning System for Big Model Era.
- Leading the development of the AIGC Big Model ColoDiffusiontraining solution
  - Use zero optimizer, auto chunk, flash-attention and other technologies to break the memory wall, support super bacth acceleration training, Diffusion Pretraining and Hardware Fine-Tuning Can Be Almost 7X Cheaper!
  - As a huggingface external developer, support huggingface diffuser library Dreamblooth for Finetone tasks on a consumer GPU with 8G of memory
- Participated in the development of Fastfold(Optimizing AlphaFold Training and Inference on GPU Clusters)
  - Support the data pre-processing Parallel(Triple the speed) for Fastfold by ray
  - support the predict the multimer fold for Fastfold
- Technology Stack:Python,C++,Cuda,Pytorch,ray,colossal-AI

## RESEARCH PROJECTS & COMPETITION

**Data-Driven Beam Tracking based on Deep Learning** 2020.1 – 2021.5

Institute of Intelligent Communication Network and Security Prof. Min Li(ZJU 100 Young Professor)

- Proposed a novel deep learning algorithm to solve the beam tracking in the mmWave communication system.
- Deducted the mathematical function and built the mmWave communication models, generated the beam-index dataset through model inference.
- Proposed an efficient beam tracking algorithm based on transformer, achieved 91% predicting accuracy, 16 percent higher than existing algorithms.

**Intel Embedding System Competition** Magic mirror based on openpose 2020.7 – 2020.11

- Developed a device equipped with a mirror and a monitor, which can detect user posture for fitness.
- Abstracted the feature of posture with Openpose, build a VGG based model to do posture classification. Deployed on hardware platform AI-Box with Intel Openvino tool.
- Developed web front-end for the mirror, enabled features including voice assistant and entrance posture recognition. Lead the team to plan and execute the whole competition, won National Second Prize.

## CLUBS & ORGANISATIONAL EXPERIENCE

**Zhejiang University Internet Society** Technology department AI lab 2021.10 – Present

**String Program** Technology department Member of the machine learning subdepartment 2020.7 – Present

**Zhejiang University Pioneering and Participating work Instructing Center** Deputy Head 2018.9 – 2020.7

**Zhejiang University Electroacoustic Orchestra** Drummer of Six o'clock studio band 2018.11 – 2021.2

## KNOWLEDGE & SKILLS

- Program Language: C++, Python, C, Golang, Matlab, Verilog, Dart, HTML/CSS/JavaScript
- AI Full Stack
    - Familiar with Pytorch, Mindspore, Tensorflow and other deep learning frameworks for distributed training, mixed precision training.
    - Familiarity with the end-side AI inference framework Mindsporelite for model transformation, deployment and underlying source code.
    - Familiar with common computer vision and machine learning libraries such as Opencv, Sklearn, ray, etc. Familiar with GPU programming using OpenCL, Cuda.
- Others:Linux,Vim,shell Language Level: IELTS 6.5
- Core Courses:Data Structures and Algorithms, Digital System Design, Operating System, Distributed Systems,Computer version, Artificial Intelligence, Computer Organization, Network of Computer, Edge Calculation, Matrix Theory and Optimize.