# WEIZHEN (Alan) ZHOU

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## EDUCATION

**New York University, NY, USA** **Sep,2024-May.2026**

Master of Science in Computer Engineering | GPA: 4.0/4.0

*Relevant Course: Computer Architecture(C++,C,RISC-V), Java(Spring Boot), Database (SQL, Java, Oracle), Internet Architecture & Protocols, Network Security, Machine Learning, Network Security*

**ShanghaiTech University, Shanghai, China** **Sep.2020-Jul.2024**

Bachelor of Engineering in Computer Science | Major GPA: 3.61/4.0

*Relevant Course: Algorithm and Data Structure(C++), Probability and Statistics, Signals and Systems(Matlab), Computer Architecture(C, RISC-V), Artificial Intelligence(Python), Numerical Optimization, Machine Learning, Digital Circuit, Computer Vision(OpenCV, PyTorch), Deep Learning, Natural Language Process, Algorithm Design and Analysis*

## SKILLS

**Programming:** Python(PyTorch, OpenCV), Java, C, C++, SQL (MySQL/Oracle),Golang, MATLAB, Go, HTML, RISC-V, R

**Skills:** Software Engineering, Database, Large Scale CV-Dataset, Multimodal, 3D Rendering/Modeling/Reconstruction, Network, Microsoft Azure, AWS, Microsoft Office

**Application:** Git, Linux Shell, Slurm, Matlab, Oracle, MeshLab, Motive, Latex, Amplide, NI Multisim, Inventor, CaptureReality

**Interest:** Software Development, Competitive Programming, Machine Learning, Computer Vision, Large Language Model

## WORK EXPERIENCE

**Research Assistant | Laboratory of Intelligent Perception and Human-Machine Collaboration** **Mar.2023-Jan.2024**

*Gaze-Guided Long-term Hand-object Interaction Prediction*

- Built a multi-camera capturing system, including motion capture cameras and eye tracker, multiple side views and ego view, with full calibration and synchronization across all devices.
- Create object collections for datasets and corresponding 3D rendering models, utilizing Meshlab and 3D scanner.
- Capture large-scale datasets, conduct frame by frame rendering and precise annotation, utilizing PyTroch, OpenCV.
- Train diffusion architecture model on generated datasets utilizing remote cluster.
- Validate dataset's accuracy and usability, demonstrating robust data alignment and high-quality annotations.
- Complete a paper and design a model that significantly improved the accuracy of predicting hand-object interactions, achieved state-of-art performance.

**Software Engineer Internship | Shanghai ScenAuto Co. Ltd.** **Summer 2022**

- Develop software to measure the 3-D coordinates of changing stockpiles, using two moving lidar scanners.
- Develop data communication software with PLC (SIMENS), utilizing the Modbus-TCP protocol.
- Develop historical data storage using MySQL.
- Develop dynamic 3-D graphics of the stockpiles, rendering each area in a different color based on data from the control system.

## PROJECT EXPERIENCE

**Tickets Booking Web Application** **Winter 2024**

*Designed and implemented a full-stack web application with a layered architecture and AI interface.*

- Built a responsive and user-friendly interface using CSS, HTML, and JavaScript.
- Designed the database schema using Oracle and MySQL.
- Implemented RESTful APIs in Java to provide web service, and leveraged Spring Boot JDBC features for database query.
- Develop an AI-based interface using ChatGPT API.

**Reinforcement Learning based Meta-Path Excavation on the Yelp Dataset** **Spring 2023**

*Implemented a DQN-based meta-path selection algorithm on the Yelp dataset, reproducing top NIPS paper results.*

- Conducted research on a meta-path selection algorithm based on reinforcement learning.
- Experimented with Yelp data to demonstrate the effectiveness of DQN-based meta-path selection strategy.
- Successfully reproduced results from a top conference(NIPS) paper, achieving strong model performance.

**Gaussian Blur Algorithm Acceleration from the Perspective of Computer Architecture** **Summer 2022**

*Accelerated Gaussian blur, cutting processing time from 20s to under 6s using computer architecture techniques.*

- Optimized the Gaussian blur algorithm utilizing Computer Architecture optimizing skills like multi-threading, SIMD instructions, loop unrolling, and cache blocking technique.
- Optimized the Gaussian blur algorithm by leveraging C language loading characteristic for image preprocessing.
- Optimized the Gaussian blur algorithm, reducing processing time for large images form 20 seconds to less than 6 seconds.

**Design of Solar Panel Dual-Axis Tracking System** **Spring 2021**

*Designed and implemented a high-precision dual-axis solar tracking system using Arduino, C, PCB board and 3D printing.*

- Researched dual-axis solar tracking algorithms and implemented them using Arduino, C language and .
- Designed circuits and 3D model fabricated light sensors, utilizing 3D printing technology, and 3D modeling software Inventer.
- Assembled the overall framework for solar panels, design circuit utilizing power distribution board.
- Design and implemented a high-precision 360-degree solar tracking system for solar panels.