JIAWEI ZHANG

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EDUCATION

University of Illinois, Urbana and Champion, US *Aug 2023 - Dec 2024(expected)*
Electrical and Computer Engineering (Master) GPA: 4.00/4.00

Major Courses
Robotics (A+), Optimization (A+), Machine Learning, Parallel Programming

Wuhan University, Wuhan, CN *Sep 2019 - June 2023*
Computer Science (Bachelor) GPA: 3.84/4.00

Major Courses
Data Structure and Algorithm (A+), Software Architecture (A+), Operating Systems

TECHNICAL SKILLS

Programming Languages/Frameworks	Python, C/C++, CUDA, PyTorch, Java, React.js
Software/Tools	Issac Gym, ROS, Sapien, Gazebo, Latex

PROFESSIONAL EXPERIENCES

ZETTAKIT Cloud Computing, Wuhan, CN Feb 2023 - June 2023
Software Development Intern

· Developed a C++ library for Linux server communication based on **Unix domain socket** to better configure parameters for servers, being actually used in subsequent development by the team
· Developed a C++ library to **control the graphics cards** used for streaming the display of a client's monitor from cloud servers on both **Windows** and **Linux** platform.
· Designed and changed some client application appearance style using **Qt framework**
· Tested the image encoding and decoding efficiency for cloud desktop system using **WebP compression algorithm**

RESEARCH EXPERIENCES

Prosthetic Hand to Perform Good Sounds Feburary 2024 - Present
Supervised by Prof. Joohyung Kim *KIMLAB, UIUC*

· Designed a **model-free RL pipeline** to train the Psyonic Ability hand performing Xylophone in real physical world
· Designed novel **rewards according to audio difference** between human-preference and robot performed
· Combined with model-based arm movement through **ROS** and **Moveit**, make learned hitting skills to perform good music
· **Submitted** to International Conference no Humanoid Robots 2024

Re-ranking for Heterogeneous Face Re-identification December 2022 - March 2023
Supervised by Prof. Zhen Han *NERCMS, WHU*

· Used modified CycleGANs and a training strategy based on different sample groups to unify modalities and then applied a linear and a non-linear re-ranking algorithm to refine the results
· Achieved a better performance compared with existing related methods and explored the prospects of face ReId in the field of ReId

SELECTED PROJECT EXPERIENCES

Atlas Dexterous Manipulation via RL and Point Cloud Inputs March 2024 - April 2024

· Constructed a bimanual dexterous hand manipulation environment in **Sapien** simulator
· Pretrain a **PointNet** to extract point cloud features as robot observation
· Design novel rewards for every manipulation tasks to train the bimanual robot through **PPO** algorithm using **stable-baseline3 library**

Matrix Operations and CNN modules Implemented by CUDA November 2023 - December 2023

- Implemented efficient **dense and sparce matrix multiplication**, **reduction**, **scan**, **histogramming** algorithms by using **shared memory tiling**, **constant memory**, etc.
- Implemented efficient CNN modules including **convolution**, **pooling** layers. Optimized them by using **matrix unrolling**, **channel reductions**, **loop unrolling**, etc.
- Analyzed the performance through **Nsight-compute**, achieved **top 15%** overall performance in the class

Ninjia Fox: A 2D Pixel Adventure Game with Unity Engine   April 2021 - June 2021

- Used the **Unity** engine to develop the skills of the main character and the **user interfaces** and the interaction with NPCs through **raycast** mechanism
- Developed the relevant actions and skills for the boss character, including movements through **animation state machine** and attack effects through **particle system**

Whisper: An Anonymous Chat Website   March 2022 - June 2022

- Used **HTML**, **CSS**, and **JavaScript** to develop the login, post, reply message, and other website features
- Designed the forms of data and stored them using **MySQL**, then called the database through **MyBatis**
- Developed the View & Controller layer of the **MVC architecture** using the **Spring** framework and realized functions including creating topics, posting comments, etc.

OTHER SKILLS & LEADERSHIP

Languages	English (Full Proficiency), Japanese (Fluent), Chinese mandarin (Native)
Leadership	- Freshman Debate Competition, 4th place: **team leader** & the **MVP** of team
	- **Organizer** of two computer science self-learning groups
	- High school business club member, secured a **sponsorship of 10,000 yuan** from a local company for the school's sports event (by myself)