Jiahao Zhang

Website: juhuazhang.github.io | **[Click]**

Email: jiahao7@illinois.edu
Mobile: +1-217-377-5568

EDUCATION

University of Illinois Urbana-Champaign — Aug 2022 – Expected Dec 2023
Master in Electrical & Computer Engineering | GPA: 3.8/4.0 — *Champaign, IL*

Zhejiang University — Aug 2019 – July 2022
Bachelor in Automation | GPA: 3.9/4.0 — *Hangzhou, Zhejiang*

EXPERIENCE

Software Engineer Intern, Tencent | [Link] — Oct 2022 – Jan 2023
More Fun Studio — *Remote*

- Developed a customized collision system in Unreal 5 using C++.
- Created two custom object movements and an object management system.
- Conducted performance analysis and optimization of the system in a 10% improvement.

Research Assistant, Zhejiang University | [Paper] — Mar 2021 - May 2022
Supervisor: Prof. Yan He — *Hangzhou, China*

- Led a team of 3 in the development and publication of a semantic topological map that represents the types of objects in a scene and their relative relationships to one another.
- Implemented an image processing pipeline to extract objects and relations between them, and iteratively updated relations to improve map accuracy.
- Responsible for the development of a custom Mask-RCNN Net in TensorFlow, and deployed the entire process on Ubuntu using Robot Operating System(ROS).

PROJECTS

Reliable Packet Transfer Protocol based on UDP | [Link] — Oct 2022
University of Illinois Urbana-Champaign — *Champaign, IL*

- Transferred packets using UDP sockets in C/C++ following a similar state machine as TCP.
- Be able to tolerate packet drops and allow other concurrent connections.

Mini Game: Escape the Maze | [Link] — Oct 2022
University of Illinois Urbana-Champaign — *Champaign, IL*

- Developed a 5-min Unreal blueprint game featuring 3 unique level segments: A Super Jump and Bullet Dodging segment, a challenging Maze Escape segment, and a Boss Battle segment.
- Designed "Pursuer" enemy with looping patrol path and dynamic player chase behavior, and "Mortar" enemy with projectile launches and explosive knockback effect.
- Integrated a health system, UI Interface and proper guidance to provide an engaging and immersive gaming experience.

Robots, Drones, and Robotic Arms Control | [Link] — May 2022
Zhejiang University — *Hangzhou, China*

- Applied RRT_STAR and DWA algorithms for trajectory planning in Gazebo
- Built a drone from scratch and applied the proportional–integral–derivative (PID) algorithm to control to hover in the air and could resist a certain amount of interference.
- Modelled the robot arm by positive kinematics and use inverse kinematics to solve the position and pose of the robot arm to control it to follow a given route.

Wireless Tracking Charger based on Computer Vision | [Link] — Nov 2021
Zhejiang University — *Hangzhou, China*

- Developed a wireless tracking charger that can detect the location of a phone on a table and move the charger to the phone for charging.
- Archived Visual recognition and coordinate extraction by OpenCV on Windows/Raspberry Pi.
- Used Arduino to receive data, send out signals and control motors.

SKILLS

- **Programming Languages**: C/C++, Python, Matlab, Bash, Markdown, LaTeX
- **Developer Tools**: Git, Vim, Docker, ROS, Unreal Engine, PyTorch, Tensorflow