

CV

Mr. Runze Xia

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EDUCATION

09/2021-09/2022	Edinburgh University <ul style="list-style-type: none">• Major: Computer Science• Degree: Master of Science	Merit Award
09/2017-07/2021	Lancaster University <ul style="list-style-type: none">• Major: Computer Science• Degree: Bachelor of Science	First Class Honours

PROJECTS

06/2022-10/2022	Simulation Environment for Interactive task learning (C++, Unity) <i>MSc Project</i> <ul style="list-style-type: none">• Setting up a ROS (Robot operating system) terminal and a Unity scene that contains a UR3e Robot arm. The robot arm can be controlled by remotely or locally connected ROS.• Setting up the scene with random elements that the robot arm can grab and place.• Constructing a player in the scene that can interact with the scene objects and the robot (player can point and move objects freely).• Generating a vision dataset from the scene for later training the vision pipeline.• Designing, integrating, and training a vision pipeline that helps the robot make movement plans (Including target segmentation, spatial analysis, and pose-estimation modules).• Designing an easy-to-use chat box GUI in Unity for players giving instructions to robot agents and displaying response messages.
09/2020-04/2021	Indoor Robot Positioning and Navigation System (C++) <i>Personal Project</i> <ul style="list-style-type: none">• An indoor robot platform control system can automatically navigate itself travel from one assigned point to the other given point and avoid obstacles.• The system deploys grid method to construct the indoor navigation map.• The system uses morphological alterations and colour extraction to perceive possible obstacles.• The system uses KCF (Kernelized Correlation Filters) tracker to segment the target image area that contains the robot. Based on this, the real-time robot location is calculated.• A-Star algorithm is applied for obstacle avoidance and pathfinding. Main techniques: OpenCV, Arduino, A-Star algorithm.
09/2019-06/2020	Game Development Based on JSFML (Java) <i>Group Member</i> <ul style="list-style-type: none">• Coding work: character control, collision detection between objects, state control of character combat, bullets tracking algorithm, special effects of character skills, the connection of various levels, scoring and ranking modules, etc.• Other work: UI, animation, rules design, user requirements analysis, writing development documents, sub-module programming, iterative testing, user satisfaction survey.• Creative work: Designed an algorithm to convert map images to binary files for map edge detection.• Programming theories used: synchronization, semaphore, locking, use Concurrent HashMap to achieve simultaneous tracking to solve concurrency problems.
03/2020-05/2020	COVID-19 Online Inquiry System (Java, JavaScript) <i>Group Leader</i> <ul style="list-style-type: none">• Responsible for server development (Springboot framework), Web Crawler build (jsoup), database management (MySQL +JDBC +Navicat), and Web page programming (HTML +JavaScript +jQuery).

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09/2020-11/2020 Online Shopping Platform Based on Distributed System (Java)

Participant

- Responsible for front-end page design and development database cluster deployment.
- Gain more profound practical experience in MVC framework, RPC system, Middleware, DDBMS and cryptography. Use multiple master nodes, AES, MD5 encryption, Fault tolerance and failure recovery mechanism.

HONORS & AWARDS

- 05/2018 **Weihai University Students ACM Programming Competition (C++)**
Totally 70 teams for 210 competitors, our team solved 9 out of 14 ACM questions. Rank 14 finally.
Excellence Award
- 07/2019 **Shandong University Students' Excellent Science and Technology Association**
Excellent Leader
- 01/2020 **College Students Intelligent Car Competition, Beijing Jiaotong University**
Design model car that navigates itself through computer vision technology.
- 09/2020 *Third Prize*
2019-2020 Academic Dean's List

EXTRACURRICULAR ACTIVITIES

- 8/2018-09/2018 **China Central Television**
Laboratory Instructor of "The First Class in the New Term" (2018)
Experimenter of the third season of "Forward To The Future" (2018, Season 3, episode 8)
 - Responsible for instructing workers making critical program props.
 - Responsible for negotiating with directors on technical details on stage.
 - Responsible for executing the experiment on stage.
- 06/2018-08/2018 **Beijing Jiaotong University, Weihai**
Interviewer
 - Responsible for contacting and interviewing outstanding alumni who have graduated and are living in Shanghai.
- 08/2019 **ICE Summer School**
Network Live Director of International Cultural Experience 2019 Showcase
 - Responsible for direct presenters and ten cameras to provide a good picture for online audience.
 - Responsible for communicating with editor and sound engineer.
 - Responsible for control the content of Screen in the hall.
 - To view my work: <https://www.la1tv.co.uk/player/217/922>

QUALIFICATIONS & SPECIAL SKILLS

- **Qualification Certificate:** H3C Certified Network Engineer
- **Programming language:** C++ (Embedded system, Unity, GUI, Network, Raytracing), Java, Python, JavaScript, Flask, HTML/CSS, C.
- **Software Mastered:** Unity, SketchUp, Blender, Word, Excel, PowerPoint, Photoshop, Premier Pro.
- **Technology skills:** Image and video processing, 3D modelling, Designing appropriate human-computer interaction mechanism and GUI. Web and Android application development.

INTERESTS AND HOBBIES

- Photography (I have my own work for sale on Adobe Stock and 500px.)
- Road trips
- Video clip (Frequent user of Adobe premiere pro and After effects)
- UI design
- Embedded system and Android APPs
- 3D Printing