

# HAN XU

☎ +86-18034349585 ✉ [kylinhanx@gmail.com](mailto:kylinhanx@gmail.com) 🌐 [github.com/kylinhx](https://github.com/kylinhx)

## Education

### Beijing Institute of Technology

*Bachelor of Engineering in Cyberspace Science and Technology*

September 2020 – May 2024

*Beijing, China*

## Experience

### Beijing ZinShark Technology Co., Ltd.

May 2023 – Present

*Algorithm Engineering Intern*

*Beijing, China*

- Led a team of 14 engineers to design algorithms for an intelligent fire-fighting system that can autonomously assess fire situations and execute fire suppression procedures. The system includes one judging robot and two action robots, and the web front-end and server's back-end. Playing a crucial role in helping the team secure angel funding.
- Generated dataset using Stable Diffusion web UI and annotated it with the tool Labelme. Trained YOLOv7 model using dynamic detection head for fire and smoke recognition, which achieved **0.7** mAP@0.5 (mean average precision at intersection over union 0.5). Deployed the model using **TensorRT** on the NVIDIA Jetson NX edge device.
- Used **ROS2** and the NVIDIA Jetson NX device to develop software solutions, including infrared and RGB cameras.
- Implemented **TCP** sockets for Server-Client communication servers and utilized **HTTP** for communication between lower-level machinery, enabling communication between robots and servers, and among robots themselves.

### Artificial Intelligence Government Lab

February 2023 – Present

*Research Assistant*

*Beijing Institute of Technology*

- Enhanced YOLOv7 model to solve **11** classes fine-grained cell detection tasks. Under the same amount of parameters achieved average **5%** mAP@0.5 higher than the state-of-the-art model with self-data from hospital and BCCD dataset.
- Independently designed and conducted data pre-processing, ablation study, and relevant experiments.
- Currently writing a paper as first author and preparing to submit it to *IEEE Transactions on Medical Imaging*.

## Projects

### Medical Q&A System | *PyTorch, Flask, JavaScript, HTML, CSS*

August 2023 – September 2023

- Deployed Aquila-7B model on the “Jiutian · Bisheng” cloud platform.
- Tailored model to medical domain through fine-tuning, including optimizing hyperparameters. Developed a web application using **JavaScript**, **HTML** and **CSS** language, which allows users to interact with the model.

### King of FightXV Reinforcement Learning Platform | *OpenCV, Gym, PyTorch*

July 2023 – August 2023

- Utilized **PyTorch** and **OpenCV** to develop a program that automatically extracts players' status, detects their position, and identifies their actions from the screen using the YOLOv8 model.
- Designed function interfaces to create an interactive environment for users to build training setups for their AI agents to engage with game characters in real-game scenarios.

### x86 Assembly Language 2048 Game | *CISC, Visual Studio*

November 2022 – January 2023

- Designed the 2048 Game architecture from scratch and created a Windows application with **x86** assembly language.
- Created algorithms for window drawing, box movement, value changes, and game start/end detection.

### Insurance information Crawl | *Python, Scrapy, BeautifulSoup, Selenium, MySQL*

September 2022 – October 2022

- Applied the **Scrapy** framework and the **Selenium**, **BeautifulSoup** library to crawl insurance information from dynamic web pages, simulating mouse clicks and bypassing verification by carrying cookies.
- Used **Pandas** library to process the obtained HTML information and saved it to local **MySQL** database.

## Technical Skills

**Languages:** Python, C, MySQL, HTML/CSS, Assembly(x86)

**Developer Tools:** Git, Visual Studio Code, Visual Studio, PyCharm, Matlab

**Libraries/Frameworks:** Pandas, NumPy, Matplotlib, PyTorch, OpenCV, Flask, Scrapy, ROS/ROS2, TensorRT

**Others:** Computer Hardware, Cryptography, Computer Workstation Assembly and Maintenance

## Awards

2023 Academic Progress Scholarship and Third-class Scholarship for Undergraduates

2023 Bronze Award in the 4th Capital University Students Innovation & Entrepreneurship Competition

2023 Third Prize of the 2023 Sino-Russian Industrial Innovation Competition China Division

2023 Second Prize in the 9th China College Students' 'Internet+' Innovation and Entrepreneurship Competition

2022 Second Prize in Beijing Undergraduate Mathematical Contest in Modeling

2022 Second Prize in HUAZHONGBEI Undergraduate Mathematical Contest in Modeling