Tianxiong Zhang

Details

Date of birth : December 21, 1998
Address : No.46, Section 4, Nanchang Road, Guanghan City, Deyang, Sichuan Province, 618307
Phone : +8615934146183
tianxiongzhang1221@163.com
...com

Language

Chinese

English

Skills

Python

Deep Learning

CV

ROS

Linux

IELTS Overall Band: 6.5

Hobbies

I am passionate about the transportation industry and enjoy riding all types of transportation and using various simulation software to simulate transportation systems. In addition, I am a big fan of cars and like to travel to different places. My favorite outdoor sport is jogging.

Education

Master's degree student of Transportation

Civil Aviation Flight University of China, Guanghan, China

Sep 2021 – Jul 2024 Supervisor: Prof. Xinping Zhu

- Ranked **#1** in academic performance in 2021 and **#2** in 2022
- GPA: 3.56/4

Bachelor of Transportation

Inner Mongolia University of Technology, Hohhot, China

Sep 2017 – Jul 2021

- GPA: 3.8/5

Research Experience

Project 1. Research on the Early Warning of Aircraft Conflict on Apron Based on Keypoint Detection

(Funded by the 2021 CAFUC Innovation and Entrepreneurship Project)

Objective: Poor ability of existing methods to monitor critical aircraft components and frequent vehicle-aircraft scraping incidents.

Methods: Object Detection, Keypoint detection, Kinematic Model

Main works: Established an aircraft keypoint detection dataset; Achieved tracking and identification of aircraft keypoints; Modeling conflict detection between aircraft and aircraft and vehicles.

Project 2. Research on Runway Intrusion Warning Based on Computer Vision

(Funded by the 2021 CAFUC Innovation and Entrepreneurship Project)

Objective: Runway intrusion is a big threat to airport operation safety, while SMR,MLAT is costly, computer vision can effectively solve the above problems.

Methods: Object Detection, Camera Coordinate Conversion.

Main works: Established aircraft object detection dataset; Realized the detection of aircraft on runways and entrance/exit taxiways; Achieved aircraft over-the-line detection.

Project 3. Unmanned Manned Target Mixed Operation Collaborative Scheduling and Conflict Detection Technology on the Apron Research

(Funded by the China Central Universities Basic Research Funds)

Objective: The use of self-driving vehicles for apron operations is the trend, and research on the process is needed.

Methods: Lane Line Recognition, Object Detection, Camera-Lidar Fusion.

Main works: Achieved automatic vehicle driving along predetermined routes; Designed vehicle obstacle avoidance strategies; Realized vehicle motion control during docking.

Master's Thesis Topic: Research on Computer Vision Based Apron Activity Conflict Detection (in progress)

Academic Achievements

Journal Articles

- **Zhang T**, Zhu X, Li J, Chen H, Li Z. Research on conflict detection model for taxi-in process on the apron based on aircraft wingtip keypoint detection. IET Intelligent Transport Systems. 2023 May;17(5):878-96. [LINK]
- **Zhang T**, Zhang Z, Zhu X, Li J. Engine Danger Areas Incursion Detection Method for Aircraft Taxiing into the Gate. IEEE Intelligent Transportation Systems Magazine. (Under Review)
- **Zhang T**, Zhang Z, Zhu X, Li J. A Multi-Keypoint Detection Based Method for Conflict Determination between Aircraft and Vehicles on the Apron Gate. Journal of Transport Information and Safety. (Peking University Core Journal, in chinese) [LINK]
- Zhu X, **Zhang T**, Li J, Zhao Q, Xu H. Wingtip Detection-based Aircraft Gate Taxi-in Conflict Determination. Journal of Safety and Environment. (Peking University Core Journal, in chinese) [LINK]
- Zhang Z, **Zhang T**, Zhu X, Li J. SEHRNet: A Lightweight, High-resolution Network for Aircraft Keypoint Detection. IET Image Processing. (Under Review)

Patents

- China Patent. CN115294805B. Jiajun Li, Xinping Zhu, **Tianxiong Zhang**, Chuan Xu, Jingjing Qu. A Video Image-based Airport Surface Aircraft Conflict Warning System and Method. 2023-05-16.
- China Patent. **Tianxiong Zhang**, Zhiqiang Zhang, Xinping Zhu, Jiajun Li. A machine vision-based aircraft engine collision avoidance warning system and method in the airfield area.(Application in progress)
- China Patent. **Tianxiong Zhang**, Zhiqiang Zhang, Xinping Zhu, Jiajun Li. A multi-keypoint detection-based conflict determination method between aircraft and vehicles within an apron.(Application in progress)

Awards

- **Second prize**, "Huawei Cup" The 18th China Post-Graduate Mathematical Contest in Modeling. (Awarded to Top 13% students)
- **Third prize**, "Huawei Cup" The 19th China Post-Graduate Mathematical Contest in Modeling. (Awarded to Top 20% students)
- **Bronze Award**, The 8th Sichuan Province International "Internet+" Student Innovation and Entrepreneurship Competition.
- 2021 **Special Scholarship for Graduate Studies**, Civil Aviation Flight University of China. (Awarded to Top 10% students)
- 2022 **Special Scholarship for Graduate Studies**, Civil Aviation Flight University of China. (Awarded to Top 10% students)

Hello

Tianxiong Zhang

March 25, 2014

Ms. joan Gildeberg
Hiring Manager
200 Forest Street
Loyalty, California 02114

Job Ref: Advertised Position within Company

Dear Ms. Joan,

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Sincerely,

Tianxiong Zhang