Zhixiong Wang

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Education Background

Hangzhou University of Electronic Science and Technology(Hangzhou Dianzi University) globally top2% in Computer Science
(Master) major: Computer Science
2021.09-2024.03 GPA: 3.1/4.0

Relevant coursework: Algorithm Design and Analysis; Artificial Intelligence and Pattern Recognition; Machine Learning; Network Protocols; Computer Organization and Principles; Computer System Design;

Qingdao Institute of Technology
(Bachelor) major: Internet of Things Engineering
2016.09-2020.06 GPA: 3.0/4.0

Relevant coursework: Fundamentals of Circuit Analysis; Computer Networks; Operating System; Computer Organization; C++ Programming Language; RFID Principles and Applications; Automatic Control and Applications; Database Principles;
Bachelor thesis: Design of IoT-based Smart Clothes Drying Rack

Research Experience

1. 2023.5-now Research on Deep Learning and computer vision
Team Leader
- Investigated the application of deep learning techniques in object detection and recognition.
- Enhanced the accuracy of localization and mapping in dynamic environments by combining YOLO and ORB_SLAM3.
- Enhanced the accuracy of the system, efforts are made to preserve static feature points within the YOLO bounding box. This approach is applied both in the dataset and real-world environments.
- Verified the system in ROS.

2. 2022.2-2023.7 Research on Robot and computer vision
Team Leader
- Designed a novel algorithm with the objective of enhancing the efficiency of matching front and back feature points by effectively eliminating outliers.
- Designed a method that should combine ZNN with the error state of the system to provide improved accurac y during system operation.
- Verified the designed methods and algorithms on a large number of EUROC data sets with the stereo camer a calibrated and fitted to an unmanned vehicle. Evaluate the obtained results.
- Improved the trajectory accuracy by an average of 71.06%, and exhibits higher stability in contrast to origin al algorithm.
- The research paper in the IEEE Transactions on Systems, Man and Cybernetics: Systems is under review[1].

3. 2021.9-2023.3 Research on Path Planning(Collaboration with senior colleagues)
Test Engineer
- Designed A new meta-heuristic optimization algorithm CBSS.
- Built graph in gazebo and test the CBSS algorithm in RVIZ.
- Published the research findings in the Sustainability[2].

4. 2019.2-2020.4 Research on Embedded Systems
Team Leader
- Implemented functions such as digital display on a 7-segment display, Bluetooth communication, buzzer control, and motor control using a microcontroller.
- Implemented the functionality of an intelligent clothes drying rack based on ESP8266 WIFI module and successfully completed my graduation thesis.

5. 2019.2-2019.9 Internet of things Design Competition
Team Leader
- Decided on the topic related to the field of smart home.
- Developed microcontroller code.
- Connected various sensors such as temperature and humidity sensors, light sensors, and microcontrollers.

Publications

[1] Chen D*, **Wang Z,** S Li. A New Visual-Inertial Odometry Scheme for Unmanned Systems in Unified Framework of Zeroing Neural Networks. IEEE Transactions on Systems, Man and Cybernetics: Systems, Under Review (submitted at 11-Sep-2023)
[2] Chen D*, **Wang Z**, Zhou G, et al. Path Planning and Energy Efficiency of Heterogeneous Mobile Robots Using Cuckoo – Beetle Swarm Search Algorithms with Applications in UGV Obstacle Avoidance[J]. Sustainability, 2022, 14(22): 15137. IF: 3.889
Web address of the paper: https://www.mdpi.com/2071-1050/14/22/15137
[3] Patent Title: "Unmanned Vehicle Sensor Error State and State Reset Neural Network Solution Method"
Application Number:2023103093064 Status: Patent Pending
Applicant: **Wang Z,** Chen D, Jiang J.

Research Interests

- **Robotic**
- **Computer Vision**
- **Machine Learning**

Awards & Honors

- **2022** Third-Class Academic Scholarship in Hangzhou University of Electronic Science and Technology
- **2021** Third-Class Academic Scholarship in Hangzhou University of Electronic Science and Technology
- **2019** Cybersecurity Knowledge Competition in Qingdao University of Technology
- **2019** Third-class award at the university level Innovation Challenge Cup for Internet of Things (IoT) in Qingdao University of Technology

Skills

- Skills in using C language, C++ and python programming language and code reading
- Proficient in using Linux operating system
- Proficient in using ROS (Robot Operating System)
- Familiar with robot hardware and software components, such as sensors (IMU, camera, etc.), navigation systems, etc.
- Familiar with implementing the system on a physical robot car and camera
- Familiar with the application of machine learning and deep learning methods in robotics and SLAM
- Familiar with pytorch
- Proficient in using microcontrollers like STM32.

Standard Tests

- **English: fluently**
- **Currently preparing for the IELTS exam**