Liu Xiangchen

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Tianjin
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EDUCATION

Tianjin University Sep 2018 - Present

Measurement and Control Technology and Instruments Bachelor School of Precision Instrument and Opto-electronics Engineering Tianjin

Major GPA: 3.85/4.0

Undergraduate Coursework: Introduction to Robotics(ROS) Computer Vision(C++) Digital Signal Processing(MATLAB) Visual C++ programming(Object-oriented C++) System verilog design(Verilog) Mathematics Model (Python) Advanced Mathematics(99) Probability Theory and Mathematical Statistics(97)

Honors:

Oct. 2020, China University Robot Competition(Robomaster) Third Prize - Tianjin University

Oct. 2021, China University Robot Competition(Robomaster) Sceond Prize - Tianjin University

Nov. 2020, TI Cup College Student Electronic Design Competition Third Prize - Tianjin University

Mar. 2020, Mathematical Contest In Modeling Honorable Prize - Tianjin University

Nov. 2019, The Chinese Mathematics Competitions First Prize - Tianjin University

RESEARCH EXPERIENCE

SMAC: A Simultaneous Mapping and Completion System for RGB-D Sensors May 2021 - Present

Supervised by Mr. Yanyan Li, Technical University of Munich, Dr. Yanbiao Sun, Tianjin University

Propose a versatile simultaneous mapping and completion system for indoor scenes, which aims to provide semantic, lightweight and complete 3D dense models for virtual reality applications. In order to reconstruct complete environments, on the one hand, I provide an image synthesis strategy aimed at restoring 2D pixels occluded by objects. On the other hand, the depth information of these occluded parts is calculated based on a ray casting approach. After restoring the 3D occluded areas, I take advantage of a resolution adaptive TSDF algorithm to build lightweight 3D models according to the texture information of scenarios.

LEADERSHIP EXPERIENCE

Auto-aim system in Robomaster Competition Sep 2020 - Present

Leader Vision/Algorithm Group Tianjin

The auto-aim system is to help our robot to achieve the intelligent detection of enemy robot, which makes use of traditional geometric feature extraction and the nerual network as the detector, using the extended kalman filter(EKF) as the predictor, KCF as the tracker. Realizing automatic attack on enemy robots in robot competitions.

SuperCapacity in Robomaster Jan 2020 - Aug 2021

Leader Control Group Tianjin

The Super Capacity Project aims to improve the maneuverability of robots in fierce competitions.

Designed the control algorithm in the MCU(STM32) to get the sensor data from several sensors and optimzie the data, using PID controller to control the general power of the robot, Accomplished the function to charge the capacity and release the energy in the capacity intelligently, improved the performance of our robots.

MISCELLANEOUS

- **Skills:** c/c++,Python,matlab,c++qt,ros,linux c++,arm-linux,opencv,machine vision, object detection
- **Languages:** CET-6, CET-4, TOEFL
- **Interests:** Indoor SLAM, Robotics, Machine Vision, Geometric Segmentation