Fanpeng Meng (Frank)

Homepage: mfp0610.github.io
Email: fanpengmeng@hust.edu.cn
GitHub: github.com/mfp0610

EDUCATION

Huazhong University of Science & Technology (HUST)   Wuhan, China
B.Eng. in Automation, School of Artificial Intelligence & Automation.   Sep. 2019 - Jun. 2023

PUBLICATIONS

- **SAMEN: A Self-Adjusting Multil-Expert Network for Imbalanced Learning**
  Fanpeng Meng*, Chenyu Zhou*, Jun Hou
  Working Paper for *International Conference on Learning Representations, 2023*

EXPERIENCE

ACADEMIC EXPERIENCE

Peking University   Beijing, China
UG Research Assistant / EPIC-Lab, Center on Frontiers of Computing Studies   Feb. 2022 - Current
Advisor: **Prof. He Wang**
Topic: Active Panoptic 3D Scene Understanding

Huazhong University of Science & Technology (HUST)   Wuhan, China
UG Research Assistant / SINC-Lab, School of Electronic Information and Communication   Sep. 2021 - May. 2022
Advisor: **Prof. Yang Cao**
Topic: Weakly Supervised Learning for Network Mode Classification and Prediction

- Proposed a self-adjusting framework for imbalanced learning. Combining multi-expert network and ensemble learning with fewer hyperparameters. *The work is preparing for ICLR, 2023.*

University of Cambridge   Cambridge, England
Summer Research Program Student   Grade: **A+**   Jul. 2021 - Sep. 2021
Advisor: **Prof. Pietro Lio**
Finished project *Human-tracking Robot in Crowded Situation*

PROFESSIONAL EXPERIENCE

Suzhou Zhito Technology   Shanghai, China
Algorithm Engineer Intern / AI Lab   Jul. 2021 - Sep. 2021
AE Intern for SLAM based on vision, advised by **Dr. Jiali Bao**

- Participating in the improvement of SLAM framework, introducing GCN in the generation of keypoints and descriptors, improved the process of feature matching.
- Constructing the 3D semantic map with PCL, introducing PSPNet for semantic segmentation combining with the depth image from RGB-D camera.

Changchun Yidong Clutch CO.,LID   Suzhou, China
Software Engineer Intern / Suzhou R&D Center   Jan. 2021 - Mar. 2021
SE Intern for embedded system, control system and algorithm, advised by **Dr. Xianping Xie**

- Designing part of the automatic clutch software architecture, applying the Rapid Application Develop (RAD).

- Participating in the development of automatic clutch, using Simulink to design CPD module (calculate clutch status, and the position and action information of the clutch pedal), using INCA to complete the module test and vehicle calibration.

Extra Experience

Pivot Studio Wuhan, China
Caption, Co-founder Nov. 2020 - Current
Pivot Studio is a campus Internet Studio, focusing on developing campus applications and technological innovations. Hompage:https://www.pivotstudio.cn/

- Established the studio and currently working on team and project management.

Projects

Spatially Blurred Image Restoration System Jul. 2021 - Mar. 2022
Designed a software for spatially blurred image restoration.

- Responsible for the algorithm design. Applying AttentiveGAN for image restoration. Training the model on GOPRO dataset and promoting SSIM from 0.78 to 0.87
- Developing a user-friendly visualization system for presentation and practical using.

Human-tracking Robot in Crowded Situation Jul. 2021 - Sep. 2021
The project is aimed at designing a human-tracking robot in crowed situation.

- Introducing SiamPRN for single object tracking in image sequence, introducing PID for distance control.
- Proposing solution for the target losing problem. Generating feature vector and find the target back by calculating the similarity of vectors, improving the robustness of the system.

Biomedical Microscopy and Detection Device Based on CMOS Chips Mar. 2021 - Jun. 2022
Designing a biomedical microscopy and detection device. Responsible for the image restoration algorithm design.

- Rewrite the baseline(MATLAB) with CUDA, promoting the processing speed from 3s to 0.1s.
- Designing a encoder-decoder network for image restoration.

A Tightly Coupled SLAM System Based on VIO Jan. 2020 - Mar. 2020
The project is aimed at designing a MonoSLAM solution fushion with IMU, solving the scale uncertainties, while improving the accuracy, robustness and speed of the system.

- Responsible for the development of SLAM algorithm, applying VINS-MONO by HKUST as the solution.
- Responsible for the design of the path planning algorithm, using HybridAstar algorithm and constructing octree to realize path planning 3D, and achieving it successfully in our target vehicle.

Scholarships and Awards

- Scholarship for Self-improvement, HUST; 2020
- Scholarship for Scientific and Technological Innovation, HUST; 2020
- "Weipai" Seed Cup, HUST; **Rank2(2/174)** 2020
- Renesas Cup Smart Car Competition, HUST; **Rank4(4/82)** 2019
- National Olympiad in Informatics in Provinces (NOIP); **First Prize** 2018

Skills

- **Programming:** Python, C/C++;
- **Tools:** Linux, Pytorch, OpenCV;
- **Skills:** SLAM, Computer Vision, Deep Learning.