YIMING LI

Cao'an Highway, Jiading District, Shanghai, 201800

◇ Personal page: `https://roboticsyimingli.github.io/` ◇ Email: yimingli9702@gmail.com

EDUCATION

- **Tongji University, Shanghai, China** *2015.9 - present*
  B.Eng. in Mechanical Engnieering GPA Overall: *90.0/100,* Major: *92.9/100*
  - Supervisor: Prof. Changhong Fu (Director of Vision4Robotics Group)
  - Scholarship: Shanghai Scholarship, National Scholarship, National Endeavor Scholarship, Excellent Student Scholarship, School Practice Scholarship.
- **Tsinghua University, Beijing, China** *2019.9 - present*
  Visiting Student in Department of Automation
  - Supervisor: Prof. Geng Lu (Director of UAV Lab)

RESEARCH INTERESTS

- Robot Vision, Aerial Robotics, Machine Learning, Visual Tracking, Pose Estimation *(present)*
- Semantic Analytics, 3D and 4D Vision, Multi-Robot System, Multi-Sensor Fusion *(future)*

RESEARCH EXPERIENCES

Developing Robust and Real-Time Aerial Tracking Algorithms on CPU *2018.7 - present*

- Proposed a general automatic spatio-temporal regularization method. *(submitted to CVPR 2020)*
- Incorporated memory augmentation to tackle filter corruption issues. *(submitted to ICRA 2020)*
- Proposed to repress the aberrance in correlation filter framework. *(published in ICCV 2019)*
- Exploited the part-based method to deal with partial appearance variation. *(under revision)*
- Fused multiple features to construct robust representation. *(published in Remote Sensing)*

Investigating Deep Learning-based Visual Tracking for UAV *2019.3 - present*

- Exploited the keyframe technique and proposed a keyfilter-aware tracker for mitigating filter corruptions and lowering the redundancy of context learning. Utilized lightweight convolution features to efficiently and effectively raise the tracking robustness. *(submitted to ICRA 2020)*
- Explored the multi-frame strategy and developed the multi-frame consensus verification for achieving long-term tracking. Fused features form different layers of CNN including both spatial and semantic information to achieve accurate tracking. *(published in IROS 2019)*
- Designed a collaborative multi-recommender scheme to unlock CNN's potential. *(under revision)*

Localization by Tracking: A Monocular Pose Estimation System *2019.7 - present*

- Developed fast trackers on C++ platform to track the markers observed by a moving camera.
- Developed a monocular pose estimation system with high versatility and accuracy.
- Tested the monocular localization system in ROS Gazebo and validated it on quanser platform.

PUBLICATIONS

Journals:

- Changhong Fu, Fuling Lin, **Yiming Li**, Guang Chen. *Correlation Filter-Based Visual Tracking for UAV with Online Multi-Feature Learning*, Remote Sensing, 11.5 (2019): 549.
- **Yiming Li**, Changhong Fu, Ziyuan Huang, Yinqiang Zhang, Jia Pan. *Intermittent Contextual Learning for Keyfilter-Aware UAV Object Tracking Using Deep Convolutional Feature*, IEEE Transactions on Multimedia, 2019. Under review.

Conferences:

- Ziyuan Huang, Changhong Fu, **Yiming Li**, Fulin Lin, Peng Lu. *Learning Aberrance Repressed Correlation Filters for Real-Time UAV Tracking*, in IEEE International Conference on Computer Vision **(ICCV'19)**, Seoul, Korea, Oct. 2019.
- Changhong Fu, Ziyuan Huang, **Yiming Li**, Ran Duan, Peng Lu. *Boundary Effect-Aware Visual Tracking for UAV with Online Enhanced Background Learning and Multi-Frame Consensus Verification*, in IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS'19**), Macau, China, Nov. 2019.
- **Yiming Li**, Changhong Fu, Fangqiang Ding, Ziyuan Huang, Jia Pan. *Augmented Memory for Correlation Filters in Real-time UAV Tracking*, in IEEE International Conference on Robotics and Automation (**ICRA'20**). Under review.
- **Yiming Li**, Changhong Fu, Ziyuan Huang, Yinqiang Zhang, Jia Pan. *Keyfilter-Aware Real-Time UAV Object Tracking*, in IEEE International Conference on Robotics and Automation (**ICRA'20**). Under review.
- *Automatic Spatio-Temporal Regularization: A General Approach in Correlation Filters for Fast UAV Tracking*, in IEEE Conference on Computer Vision and Pattern Recognition (**CVPR'20**). Under review. *(first author)*

AWARDS

Model of Outstanding Students in Tongji university (0.15 %)	*2019.1*
Second Prize of the National College Student Innovation and Entrepreneurship Competition	*2018.11*
First Prize of the 3rd Shanghai Mechanics Competition	*2018.6*
First Prize of the 8th Shanghai Innovation Design Competition	*2018.5*
Meritorious Winner in 2018 Mathematics Contest in Modeling	*2018.3*
Champion of 2017 Honda Eco Mileage Challenge (GS Group)	*2017.10*

SERVICE

Reviewer: IEEE International Conference on Advanced Robotics and Mechatronics (ARM), 2019

KEY SKILLS

Language: English: TOEFL 105(R29,L27,S24,W25), GRE(V156+Q168+AW4.0); German(B1).
Programming: C/C++, Python, Matlab.
Tools: Robot Operating System (ROS), LaTex.