

Junjie Ye

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School of Mechanical Engineering, Tongji University, No.4800 Caoan Road, Shanghai 201804, China

EDUCATION

- | | |
|---|--|
| ETH Zürich
<i>Summer Project Student in Computer Science</i> <ul style="list-style-type: none">• Scholarship: ETH Robotics Student Fellowship 2022• Internship: CVG Group | Zürich, Switzerland
2022/04 - Present |
| Tongji University
<i>MSc in Mechanical Engineering</i> <ul style="list-style-type: none">• GPA: 4.83/5.0 (equivalent to 93.5/100, top 1%)• Recommended exemption graduate | Shanghai, China
2020/09 - Present |
| Tongji University
<i>BEng in Mechanical Engineering</i> <ul style="list-style-type: none">• Seized the National Scholarship (top 0.8%)• Granted the honor of Excellent Graduate Student in Shanghai (top 2%) | Shanghai, China
2016/09 - 2020/07 |

RESEARCH INTERESTS

Visual Perception for Robots, UAV, Visual Object Tracking, Visual localization, Domain Adaptation

PROJECTS

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|---|--------------------------------------|
| Vision4Robotics Group, Tongji University
<i>Research Student, Supervisor: Prof. Changhong Fu</i> <ul style="list-style-type: none">• Nighttime Aerial Tracking<ul style="list-style-type: none">– Proposed an unsupervised domain adaptation framework to adapt object tracking from daytime to nighttime, along with a nighttime tracking benchmark (co-advised by Dr. Danda Pani Paudel at ETHz, accepted by CVPR 2022 as <i>first author</i>).– Constructed a spatial-channel transformer-based low-light enhancer, which is trained in a novel tracking-related manner, to facilitate nighttime UAV tracking significantly (accepted by RA-L as <i>first author</i>).– Designed a Retinex-inspired plug-and-play deep low-light enhancer to light up the darkness for UAV tracking (accepted by IROS 2021 as <i>first author</i>).• Siamese Network-Based UAV Tracking<ul style="list-style-type: none">– Introduced the hierarchical feature transformer into the Siamese framework to achieve interactive fusion of spatial and semantic cues (accepted by ICCV 2021).– Proposed the anchor proposal network (APN) to alleviate the hyperparameters in anchor-based approaches and redundant anchors in anchor-free approaches simultaneously (accepted by ICRA 2021 and extended version in IEEE T-GRS).– Integrated self-attention and cross-attention into SiamAPN, enhanced the perception ability for various scale objects of the proposed SiamAPN++ (accepted by IROS 2021).• Correlation Filter (CF)-Based UAV Tracking<ul style="list-style-type: none">– Proposed the multi-regularized CF and constructed a visual tracking-based UAV self-localization system (co-advised by Prof. Geng lu at Tsinghua University, accepted by IEEE T-IE as <i>first author</i>).– Introduced the interval response inconsistency and the disruptor-aware mechanism into CF framework, realizing competitive performance (accepted by IEEE T-GRS as <i>first student author</i>).– Constructed a novel CF-based tracker to enhance the sensitivity and resistance to mutations with an adaptive hybrid label (accepted by ICRA 2021). | Shanghai, China
2019/06 - Present |
| Tech&Data Center, JD.COM Inc.
<i>Research Intern, mentor: Shan An</i> <ul style="list-style-type: none">• Intelligent Perception on Embedded Systems<ul style="list-style-type: none">– Proposed a real-time augmented reality shoe try-on system, namely ARShoe, on smartphones (The system has been applied in JD app).– Proposed a semi-supervised tri-training framework for semantic segmentation (accepted by RA-L with IROS2022 presentation). | Beijing, China
2021/07 - 2021/12 |

CONFERENCE PAPERS

- [c7] **Junjie Ye**, Changhong Fu*, Guangze Zheng, Danda Pani Paudel, and Guang Chen. "Unsupervised Domain Adaptation for Nighttime Aerial Tracking" in *CVPR*, 2022. [[paper](#)] [[code](#)][[benchmark](#)]
- [c6] Ziang Cao, Changhong Fu*, **Junjie Ye**, Bowen Li, and Yiming Li. "HiFT: Hierarchical Feature Transformer for Aerial Tracking" in *ICCV*, 2021. [[paper](#)] [[code](#)]
- [c5] **Junjie Ye**, Changhong Fu*, Guangze Zheng, Ziang Cao, and Bowen Li. "DarkLighter: Light Up the Darkness for UAV Tracking" in *IROS*, 2021. [[paper](#)] [[code](#)]
- [c4] Ziang Cao, Changhong Fu*, **Junjie Ye**, Bowen Li, and Yiming Li. "SiamAPN++: Siamese Attentional Aggregation Network for Real-Time UAV Tracking" in *IROS*, 2021. [[paper](#)] [[code](#)]
- [c3] Guangze Zheng, Changhong Fu*, **Junjie Ye**, Fuling Lin, and Fangqiang Ding. "Mutation Sensitive Correlation Filter for Real-Time UAV Tracking with Adaptive Hybrid Label" in *ICRA*, 2021. [[paper](#)] [[code](#)]
- [c2] Guangze Zheng, Changhong Fu*, **Junjie Ye**, Bowen Li, Geng Lu, and Jia Pan. "Siamese Object Tracking for Vision-Based UAM Approaching with Pairwise Scale-Channel Attention" in *IROS*, 2022. [[code](#)]
- [c1] Changhong Fu*, Haolin Dong, **Junjie Ye**, Guangze Zheng, Sihang Li, Jilin Zhao. "Siamese Object Tracking for Vision-Based UAM Approaching with Pairwise Scale-Channel Attention" in *IROS*, 2022. [[code](#)]

JOURNAL PAPERS

- [j6] **Junjie Ye**, Changhong Fu*, Ziang Cao, Shan An, Guangze Zheng, and Bowen Li. "Tracker Meets Night: A Transformer Enhancer for UAV Tracking". *IEEE Robotics and Automation Letters (RA-L) with ICRA presentation*, 2022. (IF: 4.321) [[paper](#)] [[code](#)] [[demo](#)]
- [j5] **Junjie Ye**, Changhong Fu*, Fuling Lin, Fangqiang Ding, Shan An, and Geng Lu. "Multi-Regularized Correlation Filter for UAV Tracking and Self-Localization". *IEEE Transactions on Industrial Electronics (TIE)*, 2021. (IF: 8.162) [[paper](#)] [[code](#)]
- [j4] Changhong Fu*, **Junjie Ye**, Juntao Xu, Yujie He, and Fuling Lin. "Disruptor-Aware Interval-Based Response Inconsistency for Correlation Filters in Real-Time Aerial Tracking". *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, 2020. (IF: 8.125) [[paper](#)] [[code](#)]
- [j3] Changhong Fu*, Ziang Cao, Yiming Li, **Junjie Ye**, and Chen Feng. "Onboard Real-Time Aerial Tracking with Efficient Siamese Anchor Proposal Network". *IEEE Transactions on Geoscience and Remote Sensing (TGRS)*, 2021. (IF: 8.125) [[paper](#)] [[code](#)]
- [j2] Bowen Li, Changhong Fu*, Fangqiang Ding, **Junjie Ye**, and Fuling Lin. "All-Day Object Tracking for Unmanned Aerial Vehicle". *IEEE Transactions on Mobile Computing (TMC)*, 2022. (IF=6.075) [[paper](#)] [[code](#)]
- [j1] Shan An, Haogang Zhu*, Jiaao Zhang, **Junjie Ye**, Siliang Wang, Jianqin Yin, and Hong Zhang. "Deep Tri-Training for Semi-Supervised Image Segmentation". *IEEE Robotics and Automation Letters (RA-L)*, 2022. (IF=4.321) [[paper](#)]

SELECTED HONORS

Outstanding Master Student Scholarship (top 1%, departmental)	Dec. 2021
Outstanding Graduate Student of Tongji (top 1%, departmental)	Dec. 2021
Excellent Graduate of Shanghai (top 2% students from all majors, provincial)	Jun. 2020
National Scholarship (top 0.8% students from all majors, national)	Dec. 2019
Outstanding Student of Tongji (top 5%, departmental) ×2	Dec. 2018 / Dec. 2019
Champion of Shell Eco Marathon China	Sep. 2019
National Endeavor Scholarship (top 5%, departmental)	Dec. 2018
First Prize of Tongji Scholarship for Excellence (top 5%, departmental)	Dec. 2018
Tongji Scholarship for Social Practice (top 5%, departmental)	Dec. 2018

SERVICES

Reviewer for top publications, including IROS'21/'22, CVPR'22, ECCV'22, and IEEE Systems Journal.

SKILLS

Programming	Matlab, Python, C++
Languages	Chinese (native), English (TOEFL: 96, 25L, 27R, 21S, 23W)
Libraries	PyTorch, OpenCV
CAD	AutoCAD, Inventor, CATIA
Hobby	Big fan of basketball