Junjie Ye

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

EDUCATION

ETH Zürich Zürich, Switzerland
Summer Project Student in Computer Science *2022/04 - Present*
- Scholarship: ETH Robotics Student Fellowship 2022
- Internship: CVG Group

Tongji University Shanghai, China
MSc in Mechanical Engineering *2020/09 - Present*
- GPA: 4.83/5.0 (equivalent to 93.5/100, top **1%**)
- Recommended exemption graduate

Tongji University Shanghai, China
BEng in Mechanical Engineering *2016/09 - 2020/07*
- Seized the **National Scholarship** (top **0.8%**)
- Granted the honor of **Excellent Graduate Student** in Shanghai (top **2%**)

RESEARCH INTERESTS

Visual Perception for Robots, UAV, Visual Object Tracking, Low-Light Enhancement, Domain Adaptation

PROJECTS

Vision4Robotics Group, Tongji University Shanghai, China
Research Student, Supervisor: Prof. Changhong Fu *2019/06 - Present*
- Nighttime Aerial Tracking
  - 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 *first author*).
  - 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 *first author*).
  - Designed a Retinex-inspired plug-and-play deep low-light enhancer to light up the darkness for UAV tracking (accepted by *IROS 2021* as *first author*).
- Siamese Network-Based UAV Tracking
  - 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
  - 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 *first author*).
  - Introduced the interval response inconsistency and the disruptor-aware mechanism into CF framework, realizing competitive performance (accepted by *IEEE T-GRS* as *first student author*).
  - Constructed a novel CF-based tracker to enhance the sensitivity and resistance to mutations with an adaptive hybrid label (accepted by *ICRA 2021*).

JD-AR Vision Learning Group, JD.COM Inc. Beijing, China
Research Intern, mentor: Shan An *2021/07 - 2021/12*
- Real-time Augmented Reality System on Embedded System
  - Assisted to accomplished a real-time augmented reality shoe try-on system (ARShoe) on smartphones (accepted by *ACM MM 2021*).

CONFERENCE PAPERS

[c8] **Junjie Ye**, Changhong Fu*, Guangze Zheng, Danda Pani Paudel, and Guang Chen. "Unsupervised Domain Adaptation for Nighttime Aerial Tracking" in ***CVPR***, 2022. [paper] [code]

[c7] Ziang Cao, Changhong Fu*, **Junjie Ye**, Bowen Li, and Yiming Li. "HiFT: Hierarchical Feature Transformer for Aerial Tracking" in ***ICCV***, 2021. [paper] [code]

[c6] **Junjie Ye**, Changhong Fu*, Guangze Zheng, Ziang Cao, and Bowen Li. "DarkLighter: Light Up the Darkness for UAV Tracking" in ***IROS***, 2021. [paper] [code&demo]

[c5] 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] [demo]

[c4] 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] [demo]

[c3] Changhong Fu*, Sihang Li, Xinnan Yuan, **Junjie Ye**, Ziang Cao, and Fangqiang Ding. "Ad2Attack: Adaptive Adversarial Attack on Real-Time UAV Tracking" in ***ICRA***, 2022. [paper] [code&demo]

[c2] Changhong Fu*, Ziang Cao, Yiming Li, **Junjie Ye**, and Chen Feng. "Siamese Anchor Proposal Network for High-Speed Aerial Tracking" in ***ICRA***, 2021. [paper] [code] [demo]

[c1] Bowen Li, Changhong Fu*, Fangqiang Ding, **Junjie Ye**, and Fuling Lin. "ADTrack: Target-Aware Dual Filter Learning for Real-Time Anti-Dark UAV Tracking" in ***ICRA***, 2021. [paper] [code] [demo]

JOURNAL PAPERS

[j5] **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: 3.741) [paper] [code] [demo]

[j4] **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: 8.236) [paper] [code] [demo]

[j3] 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: 5.6) [paper] [code] [demo]

[j2] 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: 5.6) [paper] [code] [demo]

[j1] 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=5.577) [paper] [code] [demo]

SELECTED HONORS

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) $\times 2$	*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*

SERVICE

Invited reviewer for European Conference on Computer Vision (ECCV), 2022.
Invited reviewer for IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2022.
Invited reviewer for IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2022.
Invited reviewer for IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2021.

SKILLS

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