Junjie Ye

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EDUCATION

University of Southern California — Los Angeles, USA
PhD Student in Computer Science — *2023/08 - Present*
- Supervisor: *Prof. Yue Wang*

ETH Zürich — Zürich, Switzerland (Remotely)
Robotics Summer School Student — *2022/04 - 2022/08*
- ETH Robotics Student Fellowship 2022 (acceptance 7.1%)
- Internship: CVG Group

Tongji University — Shanghai, China
MSc in Mechanical Engineering — *2020/09 - 2023/03*
- Supervisor: *Prof. Changhong Fu*
- **Academic Pioneers** in Tongji (**10/18584** graduate students)
- Seized the **National Scholarship for Graduate Students** (top **0.8%**)

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 Robotics, Visual Localization, Domain Adaptation, Visual Object Tracking

RESEARCH EXPERIENCE

Vision4Robotics Group, Tongji University — Shanghai, China
Research Student, Supervisor: Prof. Changhong Fu — *2019/06 - 2023/03*
- 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 Computer Vision Lab, ETH, accepted by *CVPR 2022* as *first author*).
  - Constructed a spatial-channel transformer-based enhancer, which is trained in a tracking-related manner, to facilitate nighttime UAV tracking significantly (accepted by *RAL/ICRA2022* 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* as *second student author*).
  - Integrated self-attention and cross-attention into SiamAPN, enhanced the perception ability for various scale objects and proposed SiamAPN++ (accepted by *IROS 2021* as *second student author*).
  - Proposed a scale-channel attention-based Siamese network for unmanned aerial manipulator (UAM) tracking, along with a pioneering UAM tracking benchmark (accepted by *IROS 2022* and extended version in *IEEE TII*, as *second student author*)
- Correlation Filter (CF)-Based UAV Tracking
  - Introduced the interval response inconsistency and the disruptor-aware mechanism into CF framework, realizing competitive performance (accepted by *IEEE TGRS* 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* as *second student author*).

UAV Lab, Tsinghua University — Beijing, China
Research Assistant, advisor: Geng Lu — *2021/05 - 2021/06*
- Visual Tracking for UAV Self-Localization
  - Proposed the response deviation-aware and channel reliability-aware regularizations for CF and constructed a visual tracking-based UAV self-localization system (accepted by *IEEE TIE* as *first author*).

AR Vision Learning Group, JD.COM Inc. Beijing, China
Research Intern, mentor: Dr. Shan An *2021/07 - 2021/12*

- Intelligent Perception on Embedded Systems
  - Proposed a real-time augmented reality shoe try-on system, namely ARShoe, on smartphones (The system is implemented in JD APP; paper accepted by *ACM MM2021*).

CVG Group, ETH Zürich Zürich, Switzerland (Remotely)
Robotics Student Fellow, Supervisor: Prof. Marc Pollefeys and Dr. Daniel Barath *2022/04 - 2022/08*

- Visual Localization
  - Proposed the hybrid RANSAC framework with hybrid correspondence learning for accurate camera pose estimation.

FEATURED PUBLICATIONS (citations>450)

[p1] **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]

[p2] Ziang Cao, Changhong Fu*, **Junjie Ye**, Bowen Li, and Yiming Li. "HiFT: Hierarchical Feature Transformer for Aerial Tracking" in ***ICCV***, 2021. [paper] [code]

[p3] **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 (**RAL**) with **ICRA** presentation, 2022.* (IF: 5.2) [paper] [code] [demo]

[p4] **Junjie Ye**, Changhong Fu*, Guangze Zheng, Ziang Cao, and Bowen Li. "DarkLighter: Light Up the Darkness for UAV Tracking" in ***IROS***, 2021. [paper] [code]

[p5] **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: 7.7) [paper] [code]

[p6] 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: 8.2) [paper] [code]

[p7] Guangze Zheng, Changhong Fu*, **Junjie Ye**, Bowen Li, Geng Lu, and Jia Pan. "Scale-Aware Siamese Object Tracking for Vision-Based UAM Approaching". *IEEE Transactions on Industrial Informatics (**TII**), 2022.* (IF: 12.3) [paper] [code]

[p8] 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]

[p9] 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]

[p10] 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. [paper]

SELECTED HONORS

Excellent Graduate of Shanghai (top 2% students among all majors, provincial)	*Jun. 2023*
Academic Pioneers in Tongji (top **10** among all **18584** graduate students)	*Nov. 2022*
National Scholarship for Graduate (top 0.8% students among all majors, national)	*Oct. 2022*
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 among all majors, provincial)	*Jun. 2020*
National Scholarship (top 0.8% students among all majors, national)	*Dec. 2019*
Outstanding Student of Tongji (top 5%, departmental)	*Dec. 2019*
Outstanding Student of Tongji (top 5%, departmental)	*Dec. 2018*

SERVICES

Reviewer for IROS'21/'22, CVPR'22/'23, ECCV'22, ICRA'23, ICCV'23, NIPS'23, IEEE Systems Journal, etc.

SKILLS

Programming	Python, Matlab, C++
Languages	Chinese (native), English (TOEFL: 106, 29R, 29L, 22S, 26W)
Libraries	PyTorch, OpenCV
CAD	AutoCAD, Inventor, CATIA