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*
- Viterbi School of Engineering Fellowship
- Qualcomm Innovation Fellowship 2024

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

Tongji University Shanghai, China
MSc in Mechanical Engineering *2020/09 - 2023/03*
- Supervisor: *Prof. Changhong Fu*
- **Academic Pioneers** in Tongji (**10/18,584** 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%**)

WORKING EXPERIENCES

Bosch Center for Artificial Intelligence Sunnyvale, USA
Autonomous Driving Research Intern *2024/05 - 2024/08*
- Supervisor: *Dr. David Paz*
- Conducted research on scalable map priors for online mapping; Paper submitted to ICRA2025.

RESEARCH INTERESTS

Robotics, Foundation Models, Autonomous Driving, AI Agents

PREPRINTS

[p3] **Junjie Ye**, David Paz, Hengyuan Zhang, Yuliang Guo, Xianyu Huang, Henrik I. Christensen, Yue Wang, and Liu Ren. "SMART: Advancing Scalable Map Priors for Driving Topology Reasoning," *In submission to ICRA 2025.*

[p2] Jiageng Mao, Yuxi Qian, **Junjie Ye**, Hang Zhao, and Yue Wang. "GPT-Driver: Learning to Drive with GPT." *Arxiv, 2023.* [paper]

[p1] Bowen Li, Yiming Li, **Junjie Ye**, Changhong Fu, and Hang Zhao. "Predictive visual tracking: A new benchmark and baseline approach." *Arxiv, 2021.* [paper][project]

CONFERENCE PAPERS

[c18] Yuxuan Kuang*, **Junjie Ye***, Haoran Geng*, Jiageng Mao, Congyue Deng, Leonidas Guibas, He Wang, and Yue Wang. "RAM: Retrieval-Based Affordance Transfer for Generalizable Zero-Shot Robotic Manipulation" in *CoRL, 2024.* [paper][project] (* indicates equal contribution. *Oral Presentation*)

[c17] Jiageng Mao*, **Junjie Ye***, Yuxi Qian, Marco Pavone, and Yue Wang. "A Language Agent for Autonomous Driving" in *COLM, 2024.* [paper][project] (* indicates equal contribution.)

[c16] Shan An, Guangfu Che, Jinghao Guo, Yanjie Xu, Guoxin Wang, Konstantinos A Tsintotas, Fukai Zhang, **Junjie Ye**, Changhong Fu, Haogang Zhu, and Hong Zhang. "An Open-Source Robotic Chinese Chess Player" in *IROS*, 2023. [paper]

[c15] Bowen Li, Ziyuan Huang, **Junjie Ye**, Yiming Li, Sebastian Scherer, Hang Zhao, and Changhong Fu. "PVT++: A Simple End-to-End Latency-Aware Visual Tracking Framework" in *ICCV*, 2023. [paper][code][project]

[c14] Liangliang Yao, Changhong Fu, Sihang Li, Guangze Zheng, **Junjie Ye**. "SGDViT: Saliency-Guided Dynamic Vision Transformer for UAV Tracking" in *ICRA*, 2023. [paper] [code]

[c13] **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][demo]

[c12] 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]

[c11] Changhong Fu, Haolin Dong, **Junjie Ye**, Guangze Zheng, Sihang Li, Jilin Zhao. "HighlightNet: Highlighting Low-Light Potential Features for Real-Time UAV Tracking" in *IROS*, 2022. [paper] [code]

[c10] Changhong Fu, Weiyu Peng, Sihang Li, **Junjie Ye**, Ziang Cao. "Local Perception-Aware Transformer for Aerial Tracking" in *IROS*, 2022. [paper] [code]

[c9] Haobo Zuo, Changhong Fu, Sihang Li, **Junjie Ye**, Guangze Zheng. "End-to-End Feature Decontaminated Network for UAV Tracking" in *IROS*, 2022. [code]

[c8] 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]

[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] Shan An, Guangfu Che, Jinghao Guo, Haogang Zhu, **Junjie Ye**, Fangru Zhou, Zhaoqi Zhu, Dong Wei, Aishan Liu, Wei Zhang. "ARShoe: Real-Time Augmented Reality Shoe Try-on System on Smartphones" in *ACM MM*, 2021. [paper]

[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] [talk]

[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] 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]

[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]

JOURNAL PAPERS

[j10] Changhong Fu, Kunhan Lu, Guangze Zheng, **Junjie Ye**, Ziang Cao, Bowen Li, and Geng Lu. "Siamese Object Tracking for Unmanned Aerial Vehicle: A Review and Comprehensive Analysis". *Artificial Intelligence Review (**AIR**), 2023.* (IF: 12.0) [paper] [code]

[j9] Changhong Fu, Teng Li, **Junjie Ye**, Guangze Zheng, Sihang Li, and Peng Lu. "Scale-Aware Domain Adaptation for Robust UAV Tracking". *IEEE Robotics and Automation Letters (**RAL**), 2023.* (IF: 5.2) [paper] [code]

[j8] 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**), 2023.* (IF: 12.3) [paper] [code]

[j7] **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: 4.321) [paper] [code] [talk]

[j6] 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 (**RAL**) with **IROS** presentation, 2022.* (IF=4.321) [paper]

[j5] Haobo Zuo, Changhong Fu, Sihang Li, **Junjie Ye**, and Guangze Zheng. "DeconNet: End-to-End Decontaminated Network for Vision-Based Aerial Tracking". *IEEE Transactions on Geoscience and Remote Sensing (**TGRS**), 2022.* (IF=8.125) [code]

[j4] 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]

[j3] **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]

[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: 8.125) [paper] [code]

[j1] 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]

RESEARCH EXPERIENCE

GVL Lab, USC   Los Angeles, USA
PhD Student, Advisor: Prof. Yue Wang   *2023/08 - Present*
- LLMs as an Agent
  - Exploit Large Language Models (LLMs) as a cognitive agent to integrate human-like intelligence into autonomous driving systems (in submission).

CVG Group, ETH Zürich   Zürich, Switzerland (Remotely)
Robotics Student Fellow, Advisors: 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.

Computer Vision Lab, ETH Zürich   Zürich, Switzerland (Remotely)
Research Assistant, Advisor: Dr. Danda Pani Paudel   *2021/10 - 2021/12*
- Domain Adaptive Visual Tracking
  - Proposed an unsupervised domain adaptation framework to adapt object tracking from daytime to nighttime, along with a nighttime tracking benchmark (*First-authored* paper accepted by *CVPR 2022*).

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*).

UAV Lab, Tsinghua University   Beijing, China
Research Assistant, Advisor: Prof. 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*).

Vision4Robotics Group, Tongji University   Shanghai, China
Research Student, Supervisor: Prof. Changhong Fu   *2019/06 - 2023/03*
- Nighttime Aerial Tracking
  - 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*).
  - 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*).

SELECTED HONORS

Qualcomm Innovation Fellowship *Apr. 2024*
Outstanding Thesis of Chinese Institute of Electronics (top 43 among all graduates, national) *Jan. 2024*
Viterbi School of Engineering Fellowship *Sept. 2023*
Outstanding Thesis Award (top 2% students among all majors, provincial) *Sept. 2023*
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*

SERVICES

Reviewer for CVPR ('22, '23, '24), ECCV ('22, '24), ICCV ('23), NeurIPS ('23, '24), ICLR ('24), ICML ('24), IROS ('21, '22, '23, '24), ICRA ('23, '24), ICML ('24), IEEE T-NNLS, and IEEE RA-L, IEEE Systems Journal, Information Fusion, ISPRS P&RS, Knowledge-Based Systems, etc.
Total Reviews: >50

SKILLS

Programming	Python, Matlab
Languages	Chinese (native), English (TOEFL: 106, 29R, 29L, 22S, 26W)
Libraries	PyTorch, OpenCV