Junjie Ye

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

EDUCATION

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 (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] 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]

[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&demo]

[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] [demo]

[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] [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

[j4] **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.* [paper] [code] [demo] (IF: 3.741)

[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.* [paper] [code] [demo] (IF: 8.236)

[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.* [paper] [code] [demo] (IF: 5.6)

[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.* [paper] [code] [demo] (IF: 5.6)

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/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

叶俊杰

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上海市嘉定区曹安公路 4800 号同济大学

教育背景

同济大学机械与能源工程学院 2020/09 - 至今
机械电子, 硕士
- GPA: 4.83/5.0 (前 **1**%)
- 保送硕士研究生

同济大学机械与能源工程学院 2016/09 - 2020/07
机械设计制造及其自动化, 本科
- 获**国家奖学金** (前 **0.8%**)
- 2020 届**上海市优秀毕业生**荣誉称号 (前 **2%**)

研究方向

视觉感知，视觉目标跟踪，低照度图像增强，领域自适应

项目经历

同济大学Vision4Robotics 课题组 中国，上海
科研助理，导师：符长虹教授 2019/06 至今
- 夜间空中跟踪
  - 提出了一个无监督的领域自适应框架，以将白天通用场景跟踪模型泛化到夜间空中场景，并构建了夜间目标跟踪数据集（*CVPR2022*，第一作者）
  - 构建了基于空间-通道注意力的 Transformer 低照度增强器，以一种任务相关的方式进行训练，以即插即用的形式显著提升目标跟踪模型的夜间场景性能（*IEEE RA-L*，第一作者）
  - 设计了一种 Retinex 理论启发的即插即用式深度低照度增强器，在设计中考虑目标跟踪任务的特性，为无人机跟踪照亮黑暗（*IROS2021*，第一作者）
- 基于 Siamese 网络的无人机目标跟踪
  - 在 Siamese 跟踪框架中构建多级特征 Transformer 结构，实现空间和语义线索的交互式融合，使轻量级网络也能实现优良的跟踪性能（*ICCV2021*，第二学生作者）
  - 提出了 Anchor 生成网络（APN）来同时缓解 anchor-based 跟踪方法中的超参数和 anchor-free 方法中生成的冗余 anchor（*ICRA2021*，*IEEE T-GRS*）
  - 将自注意和互注意力整合到 Siamese 网络中，有效增强目标跟踪模型对各种尺度对象的感知能力（*IROS2021*，第二学生作者）
- 基于相关滤波的无人机目标跟踪
  - 构建了多正则化相关滤波跟踪模型，构建了基于视觉目标跟踪的无人机自定位系统（受清华大学陆耿教授共同指导，*IEEE T-IE*，第一作者）
  - 将区间响应不一致性和干扰感知机制引入相关滤波框架中，在多个数据集上实现良好跟踪性能（*IEEE T-GRS*，第一学生作者）
  - 构建了一种新的基于相关滤波的跟踪方法，通过自适应标签增强目标跟踪方法对突变的敏感性和抵抗能力（*ICRA2021*，第二学生作者）

京东AR/VR 视觉学习算法组 中国，北京
科研实习生，导师：安山 *2021/07 - 2021/12*
- 基于嵌入式系统的实时虚拟增强现实
  - 协助完成手机端实时增强现实虚拟试鞋系统，构建多任务网络以实现姿态估计和语义分割，主要负责模型搭建、网络训练及论文整理撰写（ACM MM2021）

期刊论文

[j4] **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.* [paper] [code] [demo] (IF: 3.741)

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会议论文

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精选荣誉

2020-2021 学年同济大学优秀研究生（前 **1%**）
2020 届**上海市优秀毕业生**荣誉称号（前 **2%**）
2018-2019 学年**国家奖学金** (前 **0.8%**)
2018-2019 学年同济大学**优秀学生**（前 **5%**）
2018 年第十三届全国环境友好科技竞赛**一等奖**
2018 年第十一届全国大学生节能减排社会实践与科技竞赛二等奖
2019 年第十二届全国大学生节能减排社会实践与科技竞赛二等奖
2019 年中国大学生“壳牌汽车环保马拉松”挑战赛原型车 ICE 组**冠军**
2019 年壳牌汽车环保马拉松赛亚洲站原型车 ICE 组**亚军**
2019 年首届全国大学生智能机电系统创新设计大赛三等奖

学术服务

受邀审稿：IROS2021&2022，CVPR2022，ECCV2022

专业技能

编程语言：Matlab, Python
语言水平：中文（母语），英语（TOEFL：96，25L，27R，21S，23W）
常用框架：PyTorch，OpenCV
绘图软件：AutoCAD, CATIA, Inventor