Fangqiang Ding

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Education Experience

- **University of Edinburgh** — Edinburgh, United Kingdom
  Ph.D. Student - Robotics and Autonomous Systems — *September 2021 - June 2025 (Expected)*
  Scholarship: School of Informatics fully-funded CDT-RAS Scholarship
  Research Topic: 4D Radar-Enabled Intelligent Perception
  Supervisor: Dr. Chris Xiaoxuan Lu (Assistant Professor @ School of Informatics, University of Edinburgh)
- **Tsinghua University** — Beijing, China
  Visiting Student - UAV Lab, Department of Automation — *August 2020 - September 2020*
  Supervisor: Dr. Geng Lu (Associate Professor @ Department of Automation, Tsinghua University)
- **Tongji University** — Shanghai, China
  Bachelor of Engineering - Mechanical Engineering; GPA: 4.73 (2/130) — *September 2017 - July 2021*
  Supervisor: Dr. Changhong Fu (Associate Professor @ School of Mechanical Engineering, Tongji University)

Research Interest

- **Past**: Visual Object Tracking, Image Processing, UAV Self-localization
- **Present**: 4D mmWave Radar, Scene Flow Estimation, Human Pose/Mesh Reconstruction

Research Experience

- **4D Automotive Radar Scene Perception** — University of Edinburgh
  Ph.D. Student — *September 2021 - Present*
  - **Detail**: Develop robust spatial and motion perception algorithms based on emerging 4D automotive radar.
  - **Outcome**: Two papers accepted by CVPR'23 and IEEE RA-L & IROS'22.
- **Real-Time and Robust UAV Tracker** — Tongji University
  Undergraduate Student — *May 2019 - June 2021*
  - **Detail**: Present novel algorithms to solve task-specific issues in UAV object tracking, such as background distractor, object shape variance, darkness, temporal continuity, without sacrificing the real-time performance on CPUs.
  - **Outcome**: Papers published by top-tier robotics (IROS/ICRA) and computer vision conference (CVPR), and relevant journals (IEEE TMM/EAAI) and magazine (IEEE GRSM).
- **Monocular UAV Indoor Self-Localization** — Tsinghua University
  Visiting Student — *August 2020 - September 2020*
  - **Detail**: Apply visual tracker to UAV self-localization under air-ground robot coordination scenarios and design a benchmark for evaluation of different methods on proposed new task.
  - **Outcome**: Paper published by relevant top-tier journal (IEEE TIE).

Selected Publications

- **Fangqiang Ding**, Andras Palffy, Dariu M. Gavrila, Chris Xiaoxuan Lu. *Hidden Gems: 4D Radar Scene Flow Learning Using Cross-Modal Supervision* (CVPR'23) [pdf] [code] [video]
- **Fangqiang Ding**, Zhijun Pan, Yimin Deng, Jianning Deng, Chris Xiaoxuan Lu. *Self-Supervised Scene Flow Estimation with 4-D Automotive Radar* (IEEE RA-L & IROS'22) [pdf] [code] [video]
- **Fangqiang Ding**, Changhong Fu, Yiming Li, Jin Jin and Chen Feng. *Automatic Failure Recovery and Re-Initialization for Online UAV Tracking with Joint Scale and Aspect Ratio Optimization* (IROS'20) [pdf] [code] [video]
- Yiming Li, Changhong Fu, **Fangqiang Ding**, Ziyuan Huang and Geng Lu. *AutoTrack: Towards High-Performance Visual Tracking for UAV with Automatic Spatio-Temporal Regularization* (CVPR'20) [pdf] [code] [video]
- Changhong Fu, Bowen Li, **Fangqiang Ding**, Fulin Li and Geng Lu. *Correlation Filter for Unmanned Aerial Vehicle-Based Aerial Tracking: A Review and Experimental Evaluation* (IEEE GRSM'21, IF=13.925) [pdf] [code]

Honors and Awards

- Grand Prize of the "Challenge Cup" Competition in Shanghai - June, 2021
- Shanghai Outstanding Graduate - May, 2021
- Academic Star in Tongji Univeristy - November, 2020
- National Scholarship - September, 2019
- National Scholarship - September, 2018
- First Prize of Tongji Mathematics Competition - June, 2018
- First Prize of Shanghai Graphics Innovation Design Competition - May, 2018

Academic Service

- **Reviewer**: IROS, ICRA, IEEE RA-L, ACM TOSN
- **Teaching Assistant**:
  Introduction to Vision and Robotics (2021-2022) (University of Edinburgh)
  Introduction to Mobile Robotics (2022-2023) (University of Edinburgh)