Heng Fan

Department of Computer Science and Engineering, University of North Texas
Room F284, Discovery Park, 3940 N Elm St, Denton, TX 76207
Email: hengfan.unt@gmail.com   Tel: 940-565-3209
Homepage: `https://hengfan2010.github.io`

RESEARCH INTERESTS

Computer Vision, Machine Learning and Medical Image Analysis

EDUCATION

Ph.D., Department of Computer Science, Stony Brook University, Stony Brook, NY, USA, 2021
  - Dissertation: "*Algorithms and Benchmarks for Robust Visual Object Tracking*"
  - Advisor: Prof. Haibin Ling
  - Committee: Prof. Xianfeng Gu, Prof. Dimitris Samaras, Prof. Jie Yang

B.S., Computer Science & Technology, Huazhong Agricultural University, Wuhan, Hubei, China, 2013

EMPLOYMENT HISTORY

- Assistant Professor, University of North Texas   Denton, TX USA, 2021−now
  Department of Computer Science and Engineering

HONORS AND AWARDS

- World's Top 2% Scientists (Stanford University), 2021, 2022
- CVPR Outstanding Reviewer Award, 2019

PUBLICATIONS

Google Scholar profile: `https://scholar.google.com/citations?user=MVQYJiMAAAAJ`

Selected Journal Articles

[1] Jifeng Shen, Teng Guo, Xin Zuo, Heng Fan, and Wankou Yang, "SSPNet: Scale and spatial priors guided generalizable and interpretable pedestrian attribute recognition," *Pattern Recognition (PR)*, accepted, 2024.

[2] Jifeng Shen, Yifei Chen, Yue Liu, Xin Zuo, Heng Fan, and Wankou Yang, "ICAFusion: Iterative Cross-Attention Guided Feature Fusion for Multispectral Object Detection," *Pattern Recognition (PR)*, 145: 109913, 2024.

[3] Libo Zhang, Xin Gu, Congcong Li, Tiejian Luo, and Heng Fan, "Local Compressed Video Stream Learning for Generic Event Boundary Detection," *International Journal of Computer Vision (IJCV)*, 2023, accepted.

[4] Hao Wang, Libo Zhang, Heng Fan, and Tiejian Luo, "Collaborative Three-Stream Transformers for Video Captioning," *Computer Vision and Image Understanding (CVIU)*, 235: 103799, 2023.

[5] Libo Zhang*, Lutao Jiang*, Ruyi Ji, and Heng Fan, "PIDray: A Large-scale X-ray Benchmark for Real-World Prohibited Item Detection," *International Journal of Computer Vision (IJCV)*, 131: 3170-3192, 2023. (*equal contribution)

[6] Libo Zhang*, Junyuan Gao*, Zhen Xiao, and Heng Fan, "AnimalTrack: A Benchmark for Multi-Animal Tracking in the Wild," *International Journal of Computer Vision (IJCV)*, 131: 496-513, 2023. (*equal contribution)

[7] Qin Zhou, Runze Wang, Guodong Guo, Heng Fan, and Guoyan Zheng, "Towards Bridging the Distribution Gap: Instance to Prototype Earth Mover's Distance for Distribution Alignment," *Medical Image Analysis (MedIA)*, 82: 102607, 2022.

[8] Pengfei Zhu, Longyin Wen, Dawei Du, Xiao Bian, Heng Fan, Qinghua Hu, and Haibin Ling, "Detection and Tracking Meet Drones Challenge," *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 44(11): 7380-7399, 2022.

[9] Ying Liu, Heng Fan, Xiaohui Yuan, and Jinhai Xiang, "GL-GAN: Adaptive Global and Local Bilevel Optimization for Generative Adversarial Network," *Pattern Recognition (PR)*, 123: 108375, 2022.

[10] Heng Fan, Hexin Bai, Liting Lin, Fan Yang, Peng Chu, Ge Deng, Sijia Yu, Harshit, Mingzhen Huang, Juehuan Liu, Yong Xu, Chunyuan Liao, Lin Yuan, and Haibin Ling, "LaSOT: A High-quality Large-scale Single Object Tracking Benchmark," *International Journal of Computer Vision (IJCV)*, 129: 439–461, 2021.

[11] Ying Liu, Heng Fan, Fuchuan Ni, and Jinhai Xiang, "ClsGAN: Selective Attribute Editing Based On Classification Adversarial Network," *Neural Networks (NN)*, 133: 220-228, 2021.

[12] Qin Zhou, Heng Fan, Hua Yang, Hang Su, Shibao Zheng, Shuang Wu, and Haibin Ling, "Robust and Efficient Graph Correspondence Transfer for Person Re-identification," *IEEE Transactions on Image Processing (T-IP)*, 30: 1623-1638, 2021.

[13] Zhigang Chang, Qin Zhou, Heng Fan, Hang Su, Hua Yang, Shibao Zheng, and Haibin Ling, "Weighted Bilinear Coding over Salient Body Parts for Person Re-identification," *Neurocomputing*, 407: 454-464, 2020.

[14] Heng Fan and Haibin Ling, "Parallel Tracking and Verifying," *IEEE Transactions on Image Processing (T-IP)*, 28(8): 4130-4144, 2019.

[15] Heng Fan, Xue Mei, Danil Prokhorov, and Haibin Ling, "Multi-level Contextual RNNs with Attention Model for Scene Labeling," *IEEE Transactions on Intelligent Transportation Systems (T-ITS)*, 19(11): 3475-3485, 2018.

[16] Heng Fan and Jinhai Xiang, "Robust Visual Tracking with Multitask Joint Dictionary Learning," *IEEE Transactions on Circuits and Systems for Video and Technology (T-CSVT)*, 27(5): 1018-1030, 2017.

Selected Conference Articles

[17] Yunhe Feng, Zexuan Meng, Colton Clemmer, Heng Fan, and Yan Huang, "A Multi-granularity Decade-Long Geo-Tagged Twitter Dataset for Spatial Computing," *ACM International Conference on Advances in Geographic Information Systems (SIGSPATIAL)*, 2023.

[18] Wenzhang Zhou*, Heng Fan*, Tiejian Luo, and Libo Zhang, "Unsupervised Domain Adaptive Detection with Network Stability Analysis," *IEEE/CVF International Conference on Computer Vision (ICCV)*, 6986-6995, 2023. (*equal contribution)

[19] Xinran Liu*, Xiaoqiong Liu*, Ziruo Yi*, Xin Zhou*, Thanh Le, Libo Zhang, Yan Huang, Qing Yang, and Heng Fan, "PlanarTrack: A Large-scale Challenging Benchmark for Planar Object Tracking," *IEEE/CVF International Conference on Computer Vision (ICCV)*, 20449-20458, 2023. (*equal contribution)

[20] Bohai Gu, Heng Fan, and Libo Zhang, "Two Birds, One Stone: A Unified Framework for Joint Learning of Image and Video Style Transfers," *IEEE/CVF International Conference on Computer Vision (ICCV)*, 23545-23554, 2023.

[21] Yaojie Shen*, Xin Gu*, Kai Xu Heng Fan, Longyin Wen, and Libo Zhang, "Accurate and Fast Compressed Video Captioning," *IEEE/CVF International Conference on Computer Vision (ICCV)*, 15558-15567, 2023. (*equal contribution)

[22] Liting Lin*, Heng Fan*, Zhipeng Zhang, Yong Xu, and Haibin Ling, "SwinTrack: A Simple and Strong Baseline for Transformer Tracking," *Advances in Neural Information Processing Systems (NeurIPS)*, 16743-16754, 2022. (*equal contribution)

[23] Mingzhe Guo*, Zhipeng Zhang*, Heng Fan, and Liping Jing, "Divert More Attention to Vision-Language Tracking," *Advances in Neural Information Processing Systems (NeurIPS)*, 4446-4460, 2022. (*equal contribution)

[24] Yongsheng Yu, Libo Zhang, Heng Fan, and Tiejian Luo, "High-Fidelity Image Inpainting with GAN Inversion," *European Conference on Computer Vision (ECCV)*, 242-258, 2022.

[25] Mingzhe Guo, Zhipeng Zhang, Heng Fan, Liping Jing, Yilin Lyu, Bing Li, and Weiming Hu, "Learning Target-aware Representation for Visual Tracking via Informative Interactions," *International Joint Conference on Artificial Intelligence (IJCAI)*, 927-934, 2022.

[26] Heng Fan, Halady Akhilesha Miththanthaya, Harshit, Siranjiv Ramana Rajan, Xiaoqiong Liu, Zhilin Zou, Yuewei Lin, and Haibin Ling, "Transparent Object Tracking Benchmark," *IEEE/CVF International Conference on Computer Vision (ICCV)*, 10734-10743, 2021.

[27] Heng Fan and Haibin Ling, "CRACT: Cascaded Regression-Align-Classification for Robust Visual Tracking," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 7013-7020, 2021.

[28] Heng Fan, Fan Yang, Peng Chu, Yuewei Lin, Lin Yuan, and Haibin Ling, "TracKlinic: Diagnosis of Challenge Factors in Visual Tracking," *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, 970-979, 2021.

[29] Heng Fan and Haibin Ling, "MART: Motion-Aware Recurrent Neural Network for Robust Visual Tracking," *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, 566-575, 2021.

[30] Fan Yang, Heng Fan, Peng Chu, Erik Blasch, and Haibin Ling, "Clustered Object Detection in Aerial Images," *IEEE/CVF International Conference on Computer Vision (ICCV)*, 8311-8320, 2019.

[31] Heng Fan and Haibin Ling, "Siamese Cascaded Region Proposal Networks for Real-Time Visual Tracking," *IEEE/CVF International Conference on Computer Vision and Pattern Recognition (CVPR)*, 7952-7961, 2019.

[32] Heng Fan, Liting Lin, Fan Yang, Peng Chu, Ge Deng, Sijia Yu, Hexin Bai, Yong Xu, Chunyuan Liao, and Haibin Ling, "LaSOT: A High-quality Benchmark for Large-scale Single Object Tracking," *IEEE/CVF International Conference on Computer Vision and Pattern Recognition (CVPR)*, 5374-5383, 2019.

[33] Heng Fan, Peng Chu, Longin Jan Latecki, and Haibin Ling, "Scene Parsing via Dense Recurrent Neural Networks with Attentional Selection," *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 1816-1825, 2019.

[34] Peng Chu, Heng Fan, Chiu C. Tan, and Haibin Ling, "Online Multi-Object Tracking with Instance-Aware Tracker and Dynamic Model Refreshment," *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 161-170, 2019.

[35] Qin Zhou, Heng Fan, Shibao Zheng, Hang Su, Xinzhe Li, Shuang Wu, and Haibin Ling, "Graph correspondence transfer for person re-identification," *AAAI Conference on Artificial Intelligence (AAAI)*, 7599-7606, 2018.

[36] Heng Fan and Haibin Ling, "Parallel Tracking and Verifying: A Framework for Real-Time and High Accuracy Visual Tracking," *IEEE International Conference on Computer Vision (ICCV)*, 5486-5494, 2017.

[37] Heng Fan and Haibin Ling, "SANet: Structure-Aware Network for Visual Tracking," *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, 42-49, 2017.

[38] Heng Fan and Jinhai Xiang, "Robust Visual Tracking via Local-Global Correlation Filter," *AAAI Conference on Artificial Intelligence (AAAI)*, 4025-4031, 2017.

[39] Heng Fan, Xue Mei, Danil Prokhorov, and Haibin Ling, "Cross Datasets Vegetation Detection with Spatial Prior and Local Context," *IEEE Intelligent Vehicles Symposium (IV)*, 735-740, 2016.

TEACHING
- CSCE 6280, *Advanced Topics in Artificial Intelligence*, University of North Texas, Department of Computer Science and Engineering, Fall 2023.

- CSCE 5218/4930, *Deep Learning*, University of North Texas, Department of Computer Science and Engineering, Spring 2022, Spring 2023, Spring 2024.
- CSCE 3110, *Data Structures and Algorithms*, University of North Texas, Department of Computer Science and Engineering, Fall 2021, Fall 2022.

ADVISING

Doctoral Student Supervision
- Shaohua Dong
- Xiaoqiong Liu

Master Student Supervision
- Pranay Rishith Bondugula
- Thanh Le, 2023

High School Student Supervision
- Saikiran Motati (TAMS), 2023
- Helen Li (TAMS), 2022

PhD Committee Member
- Saba Yousefian Jazi
- Zhaochen Gu
- Ziruo Yi
- Himanshu Sharma
- Md Marufi Rahman
- Peixia Li, (University of Sydney), defended 2023
- Ahmad Alkhodair, defended 2023
- Amar Man Maharjan, defended 2022

PROFESSIONAL ACTIVITIES

Editorial Services
- Guest Editor, ACM Journal on Autonomous Transportation Systems, Special Issue on "*Advancements in Uncrewed Aerial Vehicles: Perception, Interaction, Security, Ethics, and Beyond*", 2023

Senior Conference Committee
- Area Chair, IEEE Winter Conference on Applications of Computer Vision (**WACV**), 2022-2024
- Co-organizer, International Workshop on Computer Vision for UAVs, in **ECCV**, 2020

Conference Program Committee/Reviewers
- Neural Information Processing Systems (**NeurIPS**) - Datasets and Benchmarks Track, 2021
- IEEE Winter Conference on Applications of Computer Vision (**WACV**), 2021, 2022
- European Conference on Computer Vision (**ECCV**), 2020, 2022
- AAAI Conference on Artificial Intelligence (**AAAI**), 2020-2022
- IEEE International Conference on Computer Vision (**ICCV**), 2019, 2023
- IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2019-2024

Journal Reviewers

- IEEE Transactions on Pattern Analysis and Machine Intelligence (**T-PAMI**)
- IEEE Transactions on Circuits and Systems for Video Technology (**T-CSVT**)
- Journal of Visual Communication and Image Representation (**JVCIR**)
- IEEE Transactions on Intelligent Transportation Systems (**T-ITS**)
- ACM Transactions on Spatial Algorithms and Systems (**T-SAS**)
- International Journal of Computer Vision (**IJCV**)
- IEEE Transactions on Image Processing (**T-IP**)
- IEEE Transactions on Multimedia (**T-MM**)
- Robotics and Autonomous Systems (**RAS**)
- IEEE Signal Processing Letters (**SPL**)
- ACM Computing Surveys (**CUSR**)
- The Visual Computer (**TVC**)
- Knowledge-Based Systems
- Pattern Recognition (**PR**)
- Signal Processing
- Neurocomputing

REFERENCES

Available upon request.