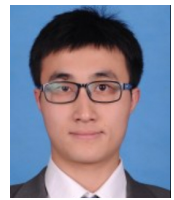# Zhenbang Li

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2021 fresh graduate

EDUCATION

University of Chinese Academy of Sciences Pattern recognition and intelligent system Doctor — Sep 2018 - Jun 2021

- Training unit: State Key Laboratory of Pattern Recognition, Institute of Automation, Chinese Academy of Sciences
- Instructor: Researcher Hu Weiming

University of Chinese Academy of Sciences Pattern recognition and intelligent system Master — Sep 2016 - Jun 2018

- Training unit: State Key Laboratory of Pattern Recognition, Institute of Automation, Chinese Academy of Sciences
- Instructor: Researcher Hu Weiming

Beijing Institute of Technology Computer Science and Technology Undergraduate — Sep 2012 - Jun 2016

Research experience (published)

[1] Zhenbang Li, Qiang Wang, Jin Gao, Bing Li and Weiming Hu. End-To-End Temporal Feature Aggregation For Siamese Trackers. IEEE International Conference on Image Processing, 2020.

While siamese networks have demonstrated the significant improvement on object tracking performances, how to utilize the temporal information in siamese trackers has not been widely studied yet. In this paper, we introduce a novel siamese tracking architecture equipped with a temporal aggregation module, which improves the per-frame features by aggregating temporal information from adjacent frames. This temporal fusion strategy enables the siamese trackers to handle poor object appearance like motion blur, occlusion, etc. Furthermore, we incorporate the adversarial dropout module in the siamese network for computing discriminative target features in an end-to-end-fashion. Comprehensive experiments demonstrate that the proposed tracker performs favorably against state-of-the-art trackers.

[2] Zhenbang Li, Qiang Wang, Jin Gao, Bing Li and Weiming Hu. Globally Spatial-Temporal Perception: A Long-Term Tracking System. IEEE International Conference on Image Processing, 2020.

Although siamese trackers have achieved superior performance, these kinds of approaches tend to favour the local search mechanism and are thus prone to accumulating inaccuracies of predicted positions, leading to tracking drift over time, especially in long-term tracking scenario. To solve these problems, we propose a siamese tracker in the spirit of the faster RCNN's two-stage detection paradigm. This new tracker is dedicated to reducing cumulative inaccuracies and improving robustness based on a global perception mechanism, which allows the target to be retrieved in time spatially over the whole image plane. Since the very deep network can be enabled for feature learning in this two-stage tracking framework, the power of discrimination is guaranteed. What's more, we also add a CNN-based trajectory prediction module exploiting the target's temporal motion information to mitigate the interference of distractors. These two spatial and temporal modules exploit both the high-level appearance information and complementary trajectory information to improve the tracking robustness. Comprehensive experiments demonstrate that the proposed Globally Spatial-Temporal Perception-based tracking system performs favorably against state-of-the-art trackers.

Research experience (under submission)

[3]ZhenbangLi, QiangWang, JinGao, BingLi, WeimingHu, StephenJ.Maybank. Visual Object Tracking Using Instance Guided Correlation Filter. Pattern Recognition.

[4] ZhenbangLi, QiangWang, BingLi, JinGao, WeimingHu. Manipulating Template Pixels For Model Adaptation Of Siamese Visual Tracking. Signal Processing Letters

PROJECT EXPERIENCE

Intelligent broadcast control platform — Sep 2018 - Dec 2018

- The platform is designed to quickly discover various risks of text, pictures, and videos in the complex and changeable Internet environment, and broadcast and control the security of Internet information content. I am mainly responsible for using deep learning technology to design video risk information classification and identification modules. The content of videos (including short videos and live broadcast rooms) on the Internet platform is used for intelligent detection and identification of pornographic, political, violent, terrorist, and spam information.

SKILLS LIST

- Research interests: including computer vision and pattern recognition, with emphasis on video target tracking, image target detection, etc.
- Programming ability: Proficient in the programming language python and deep learning framework pytorch, can quickly master the network model based on deep learning.
- Scientific research ability: Have experience in publishing top academic papers; keep up with research hotspots, read the latest literature in related fields in time, and master cutting-edge algorithms.
- English level: Pass CET-6, able to read and write English papers and documents smoothly.

HONORS & AWARDS

Outstanding graduates of Beijing ordinary colleges and universities
Outstanding graduate of Beijing Institute of Technology
Outstanding student model of Beijing Institute of Technology
First-class scholarship of Beijing Institute of Technology Outstanding Student Award