

ABSTRACT

Object tracking is one of existing and important problem in computer vision for many application. For example are security system, humanoid robot, and virtual reality. Object tracking has been researched in this last decade and shows a good improvement, but a solution that can be applied in all scenario has not been found.

Multi-Domain Convolutional Neural Network (MDNet) is a method in object tracking that combine two domains, domain-specific and domain-independent. Additionally, MDNet uses Convolutional Neural Network (CNN) as a basis. Furthermore, in this method there is a problem that affect accuracy because appearance change of object. Because of the existing problem, we propose an object tracking based on MDNet with Decision Tree method to increase the performance of MDNet itself, which Decision Tree used to estimate location of object based on classification that we set the rules based on previous input.

The performance of object tracking algorithm measured by precision plot and success plot based on One Pass Evaluation (OPE) with Object Tracking Benchmark (OTB-50) dataset. Based on our test in this final project, our proposed algorithm has better result in success rate compared to MDNet with 0.033 points increase and has best result compared to 30 state-of-the-art object tracking algorithm. Furthermore, our method has better result in precision compared to MDNet with 0.022 points increase and has best result compared to 30 state-of-the-art object tracking algorithm.

Keyword: MDNet, Decision Tree, Object Tracking, OPE, CNN