Chapter Proposal for << Book Name>>: Future trends of visual tracking

Proposed title: The Significance of visual tracking to predict the future trends.

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Abstract (150 words approximately)

A primary objective of this paper is to survey the current state of the art on visual tracking approaches, group them into categories, and identify potential future directions. Visual tracking plays a crucial role in many computer vision applications and has been studied extensively over the past few decades. Many methods have been proposed, yet , providing accurate visual tracking remains a difficult task. Tracking can be difficult when there is abrupt object motion, appearance pattern change, non-rigid object structures, occlusion, and camera motion. In this paper, we take a closer look at the state-of-the-art feature descriptors, a method for describing how tracked objects appear. In addition to this, we also categorize the tracking methodologies into three categories, describe in detail representative methods from each category, and discuss their pros and cons. Lastly, we describe future directions for the visual tracking research field. In recent years, eye tracking has become the most accessible hardware, and its market share is steadily rising. There is an increasing number of researchers sharing data, exchanging methods, collaborating on data improvement, and developing eye tracking techniques that are standard.

Keywords:

visual tracking methods, identify future trend, robust visual tracking, abrupt object motion, appearance pattern change, non-rigid object structures, occlusion, camera motion.

Introduction

The field of visual tracking is one of the most prominent ones in computer vision. The purpose of visual tracking is to locate the target in the first frame and maintain the track in subsequent frames. In general, tracking a target involves three steps, namely, feature extraction, target localization and target optimization. Feature extraction first involves describing the target in the scene. It is possible to extract handcrafted features such as color, texture, and the gradient histogram from a target object. In addition to vision information, thermal profile, infrared, and audio can also be extracted to represent a target. In addition, deep features can be extracted either from single layer or multiple layer of a deep learning based architecture.

Rational Background

Computer vision has received a significant attention in recent year, which is one of the important parts for robots to obtain information about the external environment. Visual trackers can provide the necessary physical and environmental parameters for the mobile robot, and their performance is related to the actual application of the robot.

General Issues in the selected Domain

Multiple object tracking.
Splitting and merging event's.
Hard to combine with more object feature.
Hard to copy with higher dimension target state.

Solutions and Recommendations:

This chapter is to introducing recent advances in visual tracking field as well as identifying future trends. In this chapter, we first present representative feature descriptors for visual tracking Then we summarize recent advances in online learning based tracking methods is dedicated to discussing the integration of context or knowledge information into visual tracking. we describe the recent progress on Monte Carlo sampling methods and future directions.

Future Trends and Conclusion

While the framework provides new features and benefits to gender-inclusivity in games, this section presents a research plan with an overarching goal to help ensure that gender inclusivity in game solutions is developed systematically with scientific validation principles. The result of this plan will be a set of tools to improve approaches to gender inclusivity in games, made available to a wider community of academics and practitioners, and, in addition, for the tools to be adaptable to different domains such as web design, interactive multimedia and mobile applications. The chapter concludes with a summary, a balanced assessment of the contribution of gender-inclusivity framework in games, and a roadmap for future directions.

References

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