자세추정 기반 사람 추적 및 수 측정

Pose estimation-based tracking and counting of people in videos

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Abstract:
Counting the number of people who appear in a given video has been studied for a long time. However, many of the existing methods sometimes misidentify a non-human object having similar appearance with human as a person because they basically rely on object recognition.
In this work, we implement an improved people counting approach by applying a pose estimation algorithm. The core of the pose estimation algorithm is to find major points of a person by passing the input video through a deep learning model such as the two-branch multi-stage convolutional neural network (CNN), and then connect them with an algorithm such as the greedy parse method. This approach can alleviate the aforementioned shortcoming of the existing methods because it judges a region of a video frame as a person only if it has a certain number of major points.
Furthermore, we also apply an object tracking algorithm to avoid duplicated counting over multiple frames. Once the pose estimation algorithm finds a person, the tracker detects it over time until the person disappears out of the scene.

Keyword:
People Counting, Human Detection, Object Tracking, Pose Estimation

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