

Two our recent results:

(1) Pulling on a sock by a robot and

(2) Event camera and real-time optical flow

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Annotation:

The talk will introduce two recent works which were submitted to IROS 2019

(1) Joint work with Megumi Miyashita (visiting master student) and Vladimir Kubelka

We introduce a particular use-case from a domain where soft objects are manipulated by a force/torque compliant robot KUKA iiwa. We used reinforcement learning to improve prototypical trajectory demonstrated by a human. The sensory information used is only the torque measured in each of 7 robot joints. Repeating the movement on a plastic human foot mock-up enabled to compensate for higher torques originated in inertia forces while the robot is moving.

(2) Joint work with Ondrej Holesovsky (Ph.D. student)

Independent pixels of event cameras generate asynchronous events in response to local log intensity changes, in contrast to traditional cameras sampling image frames at regular intervals. The sparse events timestamped with a microsecond precision are suitable for estimating object or scene motion. We present a method for estimating optical flow and rotational egomotion from event camera data. Our method estimates motion from these events separately in x, y directions by one-dimensional block-matching of image gradient descriptors.

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