

IROS2020 Workshop on New Advances in Soft Robots Control

Toward Understanding Design Principle Underlying Versatile Animal Behaviors

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To explore the next challenge of soft robotics, this presentation takes a look soft-bodied system in nature, that is, animals. Animals frequently exploit their flexible bodies and exhibit adaptive and versatile behaviors in real-time under real-world constraints. To understand the mechanism underlying their versatility, our research group recently find out a new perspective, i.e., functional polysemy of the animal body parts. For example, animals use their limbs as locomotor organs, whereas they use as manipulators depending on situations. Understanding the design principle of functional polysemy underlying versatile animal behaviors could shed a new perspective on the design of versatile soft robot systems. This presentation shows two case studies of the functional polysemy conducted with fruitful interactions among robotics and anatomy.