Tactile Exploration with Cost-Aware Information Gain Maximization

Tactile perception is a powerful mechanism to collect contact information by touching an unknown object with a robot finger in order to enable further interaction with the object or grasping of the object. The acquired object knowledge can be used to build object shape models based on such usually sparse tactile contact information. The talk focuses on the problem of object shape reconstruction from sparse tactile data gained from a robot finger that yields contact information and surface orientation at the contact points. To this end, an exploration algorithm based on next-best-touch is used to maximize the estimated information gain and to minimize the expected costs of exploration.

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The KIT Prosthetic Hand: Design and Control

The development and control of prosthetic hands is an active research area and recently progress in mechatronics, sensor integration and innovative control has been made. However, integration of different components into a prosthetic hand remains challenging due to space constraints, the requirements regarding holistic integration and the need for a user interface. The talk focuses on the KIT prosthetic hand, a novel five-finger 3D printed hand prosthesis, with its underactuated mechanism, sensors and embedded control system.

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