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Robotic Cutting: Mechanics and Knife Control*

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Home robots have long been a fascination to the public. They are at the core of the quality of life technology, carrying high promises for relieving people from daily chores, and providing costeffective health care to the growing elderly population and people with disabilities. Automation of kitchen skills is an important part of home robotics, and also one of the ultimate tests for robots to achieve human-like dexterity. Despite its significance and appeal, until today robotic kitchen assistance has been limited to dish washing and sorting, and to cooking of food items prepared by human.

In this work, a robotic arm equipped with a force/torque sensor is used to cut through an object in a sequence of three moves: pressing, touching, and slicing. For each move, a separate control strategy in the Cartesian space is designed to incorporate contact and/or force constraints while following some prescribed trajectory.

Website of the forum:

https://sites.google.com/view/robotcook20/

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