

סמינר - SEMINAR

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ב' 16.03.2020
(כ' באדר תש"פ), בניין דן קאהן, אודיטוריום 1, 14:30.

מרצה:

Associate Prof. Elon Rimon

Faculty of Mechanical Engineering
Technion

על הנושא:

PERSPECTIVES ON MINIMALISTIC ROBOT HAND DESIGN AND A NEW CLASS OF CAGING-TO-GRASPING ALGORITHMS

The seminar will be given in English

להלן תקציר ההרצאה:

Ten years of research on minimalistic robot hands resulted in novel robot hand designs and culminated with a new book, *The Mechanics of Robotic Grasping* by Rimon and Burdick. The perspectives gained from this intensive activity will be shared with the Technion Seminar participants, in a talk that consists of two related parts. Part I describes the configuration space analysis of multi-finger grasps. In so doing, we obtain the minimalistic 2-D and 3-D robot hand designs in terms of number of fingers. Surprise: the minimalistic 3-D design is the classical 3-finger Salisbury hand, with added security of using the hand's palm when object immobilization is necessary. Part II considers the notion of caging, which offers a robust object grasping methodology under huge uncertainty in the finger positions. A novel contact space approach resulted in a series of highly efficient and intuitive caging-to-grasping algorithms, specifically suited for minimalistic robot hands. Two such algorithms will be described for 3-finger robot hands grasping 2-D objects. The first algorithm computes caging grasps for formationally similar 3-finger hands. The second algorithm computes caging grasps of 2-D objects against a wall using two-finger hands, with the same computational complexity as the 3-finger algorithm. Perspectives on grasping 3-D objects against the environment will also be discussed.

Elon Rimon is an Associate professor in the Department of Mechanical Engineering at the Technion – Israel Institute of Technology. Professor Rimon was a finalist for the best paper awards at the IEEE International Conference on Robotics and Automation and the Workshop on Algorithmic Foundations of Robotics, and he was awarded best paper presentation at the Robotics Science and Systems Conference. Professor Rimon is the lead author of the new *Mechanics of Robot Grasping* text, published by Cambridge University Press.

בברכה,

פרופ' א"מ איתי סאס
מרכז הסמינרים