סמינריון

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ב' 2.02.15 (יג' בשבט, תשע"ה), בבניין דן-קאהן, קומה 0, באודיטוריום 1 בשעה 14:30.

ירצה: עודד סלומון

מנחה: פרופ' אלון וולף

על הנושא:

זרוע רובוטית בעלת יתירות גבוהה
Hyper-Redundant Robotic Arm

להלן תקציר ההרצאה:

Hyper-redundant robots (HRR) have a very large number of actuatable degrees of freedom (DOF) which enable them to handle more constraints, such as those present in highly convoluted volumes. It is no surprise that HRR are versatile – as are their biological counterparts: snakes, elephant trunks, and worms, all of which can poke through and crawl through crevices as well as manipulate objects.

Designed as a robotic arm, they can serve in many robotic applications, by extending the reachability and manoeuvrability of the operator, thereby enabling him to bypass obstacles and reach a target without a direct line of sight.

The many degrees of freedom that provide the HRR with its wide range of capabilities also constitute its major challenges: mechanism design, control, path planning and obstacle avoidance.

We present a novel design of a modular robotic arm with 16 DOF constructed of an exo-skeleton capable of carrying high loads.

The robotic arm is 80 cm long, 7.7 cm in diameter, achieves high rigidity and accuracy and is capable of 180° bending.

A full kinematic analysis will be presented along with simulations of several motion planning and obstacle avoidance algorithms that also deal with different types of singularities.

בברכה,

פרופ'/א אמיר שפיר
מרכז הסמינרים