ABC Seminar December 25, 2017

Speaker: Nir Dgani, Mechanical Engineering

Title: Wave-like propulsion robot over flexible surface

Abstract: This research analyzes the locomotion of a wave-like robot over highly flexible surfaces. This bio-inspired robot developed in our lab features a minimalistic mechanical design enabling miniaturization and future use as a robotic probe for medical purposes. We first develop a numerical simulation based on a simple compliant model of the surface that captures the mechanics of locomotion and determine the deformations and forces that the surface applies on the robot. Then, based on the simulation results, we constructed an experimental setup composed of a highly flexible porous rubber silicone surface a force sensor, a linear stage setup and a wave-like robot designed to withstand large forces. Award received: Highly Commended Paper of the Industrial Robot Innovation Award for Practical Innovation in the Field of Robotics - CLAWAR 2017, Portugal