UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II

PHD PROGRAM IN

INFORMATION TECHNOLOGY AND ELECTRICAL ENGINEERING

Seminar announcement

Tuesday 31 May 2022, Time: 14:30 - 15:30

Room I3, Floor 1, Building 1 - Via Claudio, 21 - NAPOLI - (TEAMS Code: vnk8k2w)

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Vine robots: design challenges and unique opportunities

Abstract Tip extension presents several design challenges and unique opportunities. Inspired by plant growth, we have developed a class of soft, pneumatic robots that extend from their tip rather than locomoting their whole body. The robot is composed of a thin-walled tubular body of airtight film or fabric, inverted back inside itself. When pressurized, the tube everts, passing new material out of the tip to extend. The advantage of tip extension is that there is no relative movement between the skin of the device and its surrounding, eliminating friction and allowing it to squeeze through tight spaces. In my talk I will first discuss several design challenges of vine robots including steering, camera attachments, and control. I will then present some unique opportunities of vine robots including medical devices and burrowing on the Moon.

Lecturer short bio: *NICHOLAS NACLERIO is completing his PhD at the University of California, Santa Barbara. He is a NASA Space Technology Research Fellow, an NSF Graduate Research Fellowship awardee, and received his bachelor's degree from Duke University. His is interested in developing soft robots and mechanically intelligent systems that passively adapt to unstructured or changing situations in extreme environments such as space, underground, underwater, and inside the human body. His works have been published in various journals and conferences and have been featured on the cover of Science Robotics and in a popular Veritasium YouTube video.*

For information: Mario Selvaggio, PhD (DIETI, UniNA) – mario.selvaggio@unina.it *(organizer)*