Finanziato dall'Unione europea NextGenerationEU | Ministero dell'Università e della Ricerca | Italiadomani PIANO NAZIONALE DI RIPRESA E RESILIENZA | Università degli Studi di Napoli Federico II

ICTH PhD | itee PhD information technology electrical engineering

UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II

MISSIONE 4 COMPONENTE 2 INVESTIMENTO 3.1 – FONDO PER LA REALIZZAZIONE DI UN SISTEMA INTEGRATO DI INFRASTRUTTURE DI RICERCA E INNOVAZIONE – AVVISO N. 3264 DEL 28 DICEMBRE 2021

PROGETTO BRIEF - BIOROBOTICS RESEARCH AND INNOVATION ENGINEERING FACILITIES STRENGTHENING OF AN EXISTING RI AMONG THOSE LISTED IN NPRI WITH HIGH PRIORITY CUP: J13C22000400007

PHD PROGRAM IN INFORMATION AND TECHNOLOGY FOR HEALTH
PHD PROGRAM IN INFORMATION TECHNOLOGY AND ELECTRICAL ENGINEERING

Seminars announcement

Monday 19th January 2026, Time: 8:30 - 12:30 (0,8 CFU)
Aula CSIF Giardino, DIETI – Piazzale Tecchio, 80 - NAPOLI

Dr. Cem Bilaloglu

Ph.D student in Electical Engineering

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"Ergodic Control for Robotic Exploration and Coverage" & "Learning Reusable Manipulation Skills across Objects"

Abstract 1: Ergodic control is an optimal control framework for generating exploratory robot trajectories from a desired spatial distribution. The key idea is that the robot should spend time in each region in proportion to the target distribution, so exploration naturally focuses on areas of interest while still providing broad coverage. In this talk I will introduce the core objective, the main algorithmic ingredients, and practical design choices that matter in real systems, including how to represent the target distributions, and adjust the local vs. global exploration behavior, showcasing applications.

Abstract 2: Many manipulation tasks depend on task relevant directions such as moving along a surface, pushing toward an object, or following an edge. For curved objects, these directions change with position and geometry, and no single global reference frame remains valid everywhere. This makes it challenging to represent and transfer continuous contact skills across object instances and environments. In this talk I will present Diffused Orientation Fields, a smooth geometric prior that builds locally varying reference frames from online point clouds and a sparse set of task keypoints.

Lecturer short bio: Cem Bilaloglu is a Research Assistant at the Idiap Research Institute, supervised by Dr. Sylvain Calinon, and a PhD candidate in robotics at EPFL. He works on Horizon Europe projects IntelliMan and Sestosenso. His research sits at the intersection of learning, control, and geometry for robotic manipulation, with a focus on online exploration and transfer across tasks and environments.

The seminar will take place on January 19, 2026, at the Aula CSIF Giardino, Piazzale Tecchio 80, Naples, with the option to attend remotely via MS Teams: ***https://teams.microsoft.com/l/meetup-join/19%3aygXvTa1ZGtSEMsQVd9IOOCdyPe7_p4jOFK7G7QZzjwU1%40thread.tacv2/1768303399358?context=%7b%22Tid%22%3a%222fcfe26a-bb62-46b0-b1e3-28f9da0c45fd%22%2c%22Oid%22%3a%22175ed07e-f9f4-4480-815c-4c0f14e81d68%22%7d***

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