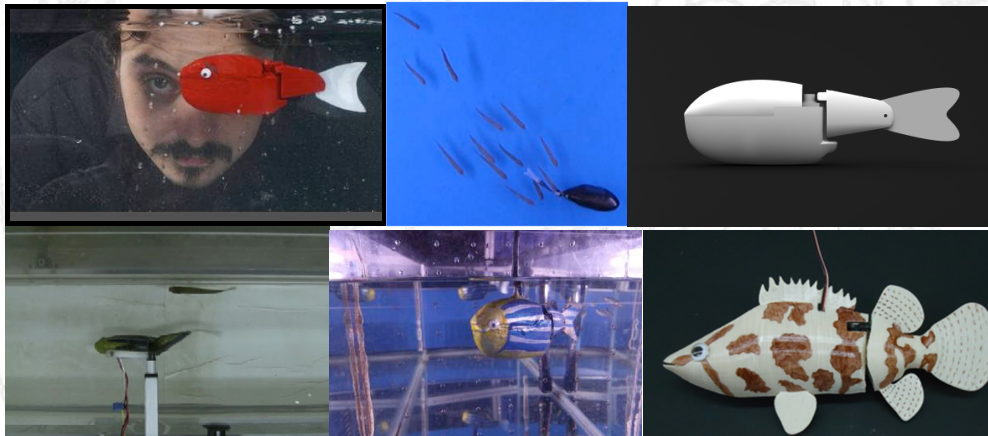


Fish 'n' Robots: not a take-out food

Engineering design of robots is often inspired by nature; recently developed bioinspired robots accurately imitate various aspects of their live counterparts. Yet, the relationship between engineering and nature has often been one-directional: engineers borrow ideas from nature to build more efficient, more appealing, and better performing robotic systems for use in traditional human-centered applications. In some cases, these systems are used as proxies for studying the natural system, but whether these devices can be integrated within the 'ecological niche' inspiring their design seldom is experimentally tested. An even more elemental research question pertains to the feasibility of modulating spontaneous behavior of animal systems through bioinspired robotics. In this talk, we discuss recent research findings at the Dynamical Systems Laboratory of the Polytechnic Institute of New York University on the feasibility of integrating robotic fish in experimental paradigms to investigate the behavior of social fish. In this context, robots can be used to offer consistent, customizable, and controllable stimuli for decomposing the complex nature of information sharing and decision making in fish. This talk will address fundamental scientific questions such as: is fish behavioral response influenced by a robotic fish and, if so, what is the consistency of such response? What are the determinants of attraction or repulsion of a robotic fish and can they be modulated through the administration of psychoactive compounds? What is the role of hydrodynamic effects and visual cues? Does the behavior and motion of a robotic fish influence fish social response? Do fish interact differently with a robotic fish depending on their 'personality'?



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Thursday, November 28

MS1 Room, 16.00

Dip. Ingegneria Civile e Architettura
Via Ferrata, 3 – Pavia

The support of the European Community through the **2010 ERC Starting Grant project** "ISOBIO: Isogeometric Methods for Biomechanics" is gratefully acknowledged