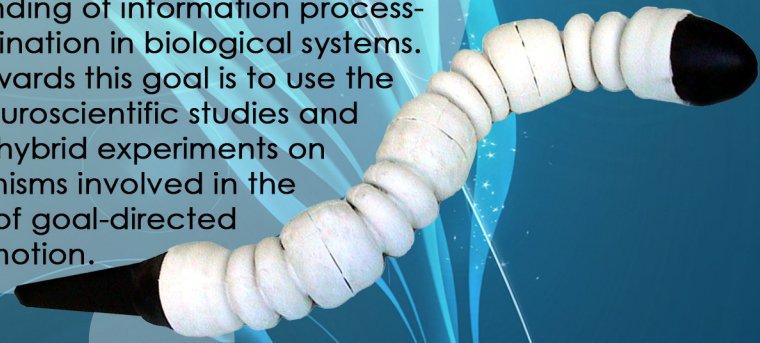


# Lampetra

The **LAMPETRA** project aims at developing lamprey and salamander-like bioinspired artefacts in order to find new solutions for high-performance artificial locomotion in terms of fast response, adaptability, reliability, energy efficiency and control. The artefacts will replicate living animal characteristics, from the neuronal level up to control and behavioral responses. The robots will control their locomotion and body orientation in goal-directed tasks, moving like real animals in their natural environments.



The choice of the **lamprey** and **salamander** as animal models is motivated by their agile locomotion skills, their great importance from an evolutionary point of view, and by the fact that their neural centers controlling locomotion have been studied in detail. The project is expected to achieve advances both in neurosciences and in robotic technologies. One core aspect is a better understanding of information processing and sensorimotor coordination in biological systems. The original approach towards this goal is to use the robots for conducting neuroscientific studies and for performing bio-hybrid experiments on vertebrate mechanisms involved in the neural control of goal-directed locomotion.



Another core aspect is the development of new robotic technologies both in terms of hardware and control. The bio-inspired systems will be composed of a high number of segments, a compliant body structure, muscle-like actuators, legs-like appendages, artificial stretch receptors, vestibular and vision sensors, and electronic hardware that combines digital and analogue circuits. The control architecture will be guided by the neurobiological studies and based on the concept of central pattern generators together with various sensorimotor loops for robust and adaptive goal-directed locomotion.

For more Information:



<http://www.lampetra.org>



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