MACOP: Modular Architectures with Control Primitives

MACOP is an unsupervised method to control a complex dynamical system by decomposing the complexity into several simple controllers. The final control signal is a linear combination of the motor commands of all controllers.

Oncilla quadruped

The Oncilla is a compliant quadruped robot used to develop rich motor skills for robust locomotion. We have been exploring various gaits for this robot on the simulation model and have started optimizing these gaits on the oncilla robot using particle swarm optimization.

Learning tunable pattern generators

The rich non-linear dynamics of Echo State Networks are perfectly suited for encoding motor patterns of arbitrary shape.

Tensegrity robot design & control

Learning to write with a Tensegrity end-effector using Reward Modulated Hebbian Learning

Tensegrity robot configurations with 4 actuators