

Some questions to think about for discussion of the *Ecological Robotics* paper:

What is the authors' overall approach to the visual guidance of locomotion?

What do they mean by *behavior-based robotics*?

How does their approach differ from the *sense-model-plan-act* approach?

What are the essential elements of *ecological psychology* and *direct perception*, and how do they relate to the authors' approach of *ecological robotics*?

What is meant by a *law of control*?

What examples of laws of control were explored in this paper?

What information about the environment does the robot need to sense, in order to make use of each law of control?

How does the sensed information constrain the robot's response behavior?

What do the authors mean when they say that "no central model is needed" to apply the laws of control?

What locomotion task(s) does each law of control help the robot to perform?

What factors might influence which law of control is applied in a particular context? How could multiple laws of control interact, and what could be done if multiple laws can be applied in a given context?

One of the principles of ecological robotics is that a robot's behavior emerges from the dynamics of a robot-environment system that follows certain laws of control.

What are examples of behaviors that emerged in the simulations and experiments with real robots?

What laws of control appear to underlie these emergent behaviors?

What simplifications were assumed in the implementation of the control laws on the physical robots Louie and Ramona? For example, how did the translation and rotation of the robots interact, and how were the left and right hemifields of the visual image defined (i.e. for the purpose of measuring the total flow in the two hemifields)?

When engaged in "wandering" behavior, how did the behavior of the (real and simulated) robots change with (1) the field of view of the scene, (2) the level of noise in the inputs, and (3) the speed of the robot?

What control laws were used in the "Game of Tag" and what was learned from the experiments with real robots and simulations of these control laws?

Where might you take this work in the future?