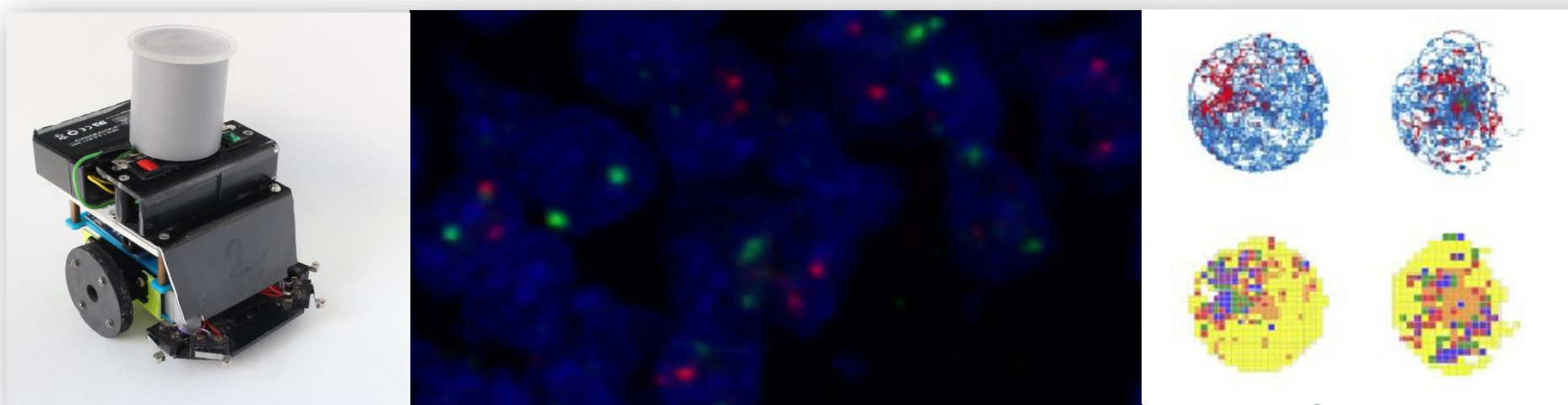


Diploma/PhD thesis topic:

Neural substrate of moving-goal representation

- Ability to orient and navigate in environment inhabited with moving objects (conspecifics, potential predators, prey) is crucial for survival in many animal species. The main goal of our project is to investigate in laboratory rat neural circuitry involved in controlling interaction with moving objects (a mobile robot) in an environment. We are currently using immediate early gene imaging (cFos, Arc) to identify which brain regions (presumably hippocampus and/or lateral entorhinal cortex) reflect active avoidance of a moving robot.
- **We are seeking a motivated student for an electrophysiology part of the project:** he/she will use single cell recording to characterize spiking action potential activity in the hippocampal/cortical areas during interaction between a rat and the moving robot. He/she will also learn optogenetic or chemogenetic approach that will allow us to manipulate individual components of the identified circuitry to disentangle their mutual functional relationship.



- The project is supported by INTER-ACTION grant, in cooperation with Dr. Eduard Kelemen (Národní ústav duševního zdraví), Jean-Marc Fellous (University of Arizona), and André Fenton (State University of New York).
- We prefer a graduate student wishing to continue as a PhD, or a doctorate student familiar with electrophysiology techniques. Other essentials: MATLAB programming, willingness to perform stereotaxic surgeries, fine motoric skills (required for microdrive manufacturing)

Interested? See our latest paper:

Ahuja N, Lobellová V, Stuchlík A, Kelemen E. Navigation in a Space With Moving Objects: Rats Can Avoid Specific Locations Defined With Respect to a Moving Robot. *Front Behav Neurosci.* 2020 Nov 12;14:576350

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