Laboratoire de Conception et d'Intégration des Systèmes

SpeechPizza

Thursday, 28 March 2024
12:00 - 13:15, D011
https://lcis.grenoble-inp.fr

Weikang Zeng weikang.zeng@lcis.grenoble-inp.fr
(PhD candidate within CO4SYS team working with Francois Suro, Clement Raievsky and Michel Occello)

Title: Lifelong development of representations for artificial agents

Abstract: The subject of my thesis is to improve the long-term development of artificial agents, such as robots, by helping them to construct their own representations. More precisely, we want to reproduce certain emotional mechanisms of natural agents that emerge from simple representations, such as fear, boring and depression, which lead the agent to re-evaluate its approach and objectives. By the combination of previous skills and the iterative generation of new skills and advanced representations, agents can develop over long periods and evolve towards complex behaviors such as social communication and the propagation of emotions. Eventually, agents will be able to share their experience and coordinate to perform more complex tasks such as foraging, with group allocation and collaborative manipulation.

Meng Yang meng.yang@lcis.grenoble-inp.fr
(PhD candidate within ORSYS team working with Nicolas Barbot)

Title: Optimal Matching for LTV and NL-TV UHF RFID Transponder

Abstract: In this work, three impedance matching methods are proposed to be better than the conventional conjugate matching for linear time-varying systems and nonlinear time-varying systems of UHF RFID transponder. The principle is to coordinate the power received by the chip and the power backscattered to the reader. All antenna matching methods are only a function of chip impedance and can be calculated by strict mathematical derivation. Compared with the conventional conjugate matching, the optimization of these methods is obvious, and the reading distance can be improved 5% for NXP UCODE G2XM chip and 26% for MURATA 7XM chip, respectively.

Cong Khanh Dinh cong-khanh.dinh@lcis.grenoble-inp.fr
(PhD candidate within CO4SYS team working with Ionela Prodan)

Title: Implementation of Distributed Model Predictive Control for constrained multi-agent systems

Abstract: Multi-agent systems (MAS) present a complex framework where multiple agents interact within an environment, often facing challenges in motion control and planning for robotic systems due to scalability and communication constraints. Addressing these complexities usually requires a distributed approach, where the control problem is divided into manageable sub-problems across various units of the MAS. This ensures constraint satisfaction while optimizing computational resources for real-time applications. Our work focuses on employing Model Predictive Control (MPC) to address motion planning problems in MAS. By integrating MPC within distributed framework, we aim to plan trajectories in real-time for multi-robot systems while adhering to constraints.

Daniel Thirion daniel.thirion@lcis.grenoble-inp.fr
(PhD candidate within CTSYS team working with Vincent Beroulle, David Hély and Valentin Egloff)

Title: Partial Reconfiguration-based SEU fault injection on Xilinx 7-series MPSoC

Abstract: SEU Fault Injection is a method used in safety for determining critical Flip-Flops and testing system robustness. Usually done in simulation, this is a very costly and time-consuming task. This new method, based on original work by TIMA, uses FPGA Partial Reconfiguration with Xilinx 7-series MPSoC boards, to inject faults into any Flip-Flop, as well as multiple new methods to increase the view of the system like net probing and tracing. In this presentation, we will explore this new method, its implementation, and how it compares to existing ones.

The science behind pizza!

The volunteers for giving a short talk the next editions should not hesitate to contact ionela.prodan@lcis.grenoble-inp.fr or valentin.egloff@lcis.grenoble-inp.fr.