CT Commande Prédictive Non Linéaire

November 16th, 2023

ESISAR Valence

LCIS
Laboratoire de Conception et d'Intégration des Systèmes

GRENOBLE INP UGA

Agenda

9h30-10h: Welcome and introduction

- 10h00-10h30: Maintaining a relevant dataset for data-driven MPC using Willems' fundamental lemma extensions
  Alexandre Faye-Bédrin, Stanislav Aranovskiy, Paul Chauchat, Romain Bourdais (IETR - CentraleSupélec)
- 10h30-11h: Nonlinear MPC for collision-avoidance trajectory tracking of a multi-UAV system in a mapping mission
  Dora Novak, Sihem Tebbani (L2S - CentraleSupélec)
- 11h-11h30 : Solving MPC problems using ramp functions
  Morten Hovd (NUST)

11h45 – 13h45: Lunch break & Esisarium platform visit

- 13h50 – 14h20: Distributed Moving Horizon Estimation with pre-estimation using EKF for Nonlinear Measurements
  Matthieu Borelle, Sylvain Bertrand, Cristina Stoica, Teodoro Alamo, Eduardo F. Camacho (ONERA – L2S – CentraleSupélec – Univ. Séville)
- 14h20 – 15h05: A (small) step towards a systematic design of NMPC effective and implementable setting
  Mazen Alamir (CNRS, GIPSAlab, Grenoble INP)
- 15h05 – 15h50: Distributed predictive control based on Gaussian process models
  Alexandra Grancharova (Univ. of Chemical Technology and Metallurgy)

15h50-16h: Coffee break

- 16h-16h30: Computer-generated Control Lyapunov Function via offline linear programming
  Huu-Thinh Do, Franco Blanchini, Stefano Miani, Ionela Prodan (Grenoble INP – LCIS - Universit`a di Udine)
- 16h30-17h: Terminal region enlargement of a stabilizing NMPC design for a multicopter
  Huu Thien Nguyen, Ngoc Thinh Nguyen, Ionela Prodan (SYSTEC–ISR – Univ. of Porto – Univ. of Luebeck, Grenoble INP – LCIS)
- 17h-17h30: Mixed-integer predictive control for a three-phase electric arc furnace producing Silico Manganese
  Minh Tuan Dinh, Ionela Prodan, Olivier Lesage, Eduardo Mendes (Grenoble INP – LCIS – Eramet Ideas)

CT CPNL organization

- Use of ML: cpnl@sagip.org
  - Share news, CFP, offers (jobs, PhD, Master), etc.

- Subscribe to the mailing list of CT CPNL: via SAGIP website
  - Subscribe to SAGIP (http://www.sagip.org/fr/inscription-mode-demploi)
  - Account opening -> Choose your CT of interest

Société d'Automatique, de Génie Industriel & de Productique

- CT CPL website: ct-cpnl.fr

CT CPNL actions

- 1 full day (in-person) + possible additional events (visio)

- 2023:
  - Invited session on MPC at ECC
  - Two sessions for CT CPNL at 1st SAGIP Congress

- 2024:
  - CFP for 2nd SAGIP Congress (https://sagip2024.sciencesconf.org/)
    - Lyon, 29-31 May, 2024
    - Abstract submission deadline: Feb. 15th, 2024

    -> abstract may concern already published conference or journal paper

    -> choose CT CPNL when submitting your abstract

  - CFP for IFAC NMPC (https://nmpc2024.org)
    - Kyoto, 21-24 August, 2024
    - Paper submission deadline: Dec. 18th, 2023

- Possible action: organization of a summer school on MPC in France
  - Contact us if your are interested in the project!

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