Postdoctoral Position in Applied Mathematics

We are looking for an excellent postdoctoral researcher with expertise in networked dynamics, control theory, system identification and/or operator theory, to join us at the department of Mathematical Engineering, UCLouvain (Belgium). The target starting period is April 1st- Sept 1st.

Project

The position is funded by the project "***Modular Koopman-operator based representations for nonlinear network identification***" (KORNET), a joint project between the ICTEAM/INMA institute at UCLouvain (PI: Julien Hendrickx) and the naXys institute in Namur (PI: Alexandre Mauroy). The researcher will be affected at UCLouvain, but spend at least 20% of his/her time in Namur.

The selected candidate will work on the identification of subsystems in interconnected nonlinear systems with known topology (see [1,2] for results in the linear case), and on the identification of network topology in interconnected nonlinear systems with known dynamics (see [3,4]). This research will take place in the context of a project whose objective is to leverage nonlinear operator theory in the context of nonlinear network identification.

Profile

The candidates must hold a PhD in Engineering or Mathematics (or equivalent). He/she is expected to have a solid background in Applied Mathematics, with a keen interest in learning theoretical concepts but also in developing practical methodologies for applications. Specific knowledge of networked dynamics, control theory, system identification and/or operator theory will be appreciated.

To be eligible, the candidate must have obtained a PhD degree less than 6 years at the beginning of the postdoctoral fellowship and must not have resided or carried out their main activity (job, studies...) in Belgium for more than 24 months during the last 3 years.

Timing

The target starting period is April 1st – Sept 1st 2022. The position is for a duration of 1 years, extensible by 9 months. (subsequent opportunities to be discussed)

Environment:

UCLouvain is one of the oldest universities in Europe, with its main campus is located in Louvain-la-Neuve, close to Brussels, Belgium.

The Institute of Information and Communication Technologies, Electronics and Applied Mathematics (ICTEAM), hosts more than 40 professors and 200 researchers, and carries out both basic and applied research in key fields of information and communication technologies, electronics, computer science and applied mathematics. Its members teach in the Ecole Polytechnique de Louvain.

You will be joining a team of currently 8 researchers, including two postdocs.

How to apply

Send an email with title "[Postdoc Kornet]" to Julien Hendrickx (Julien.hendrickx@uclouvain.be), containing a CV, list of publications, and the name of at least two referees.

If you have any question, please contact us at julien.hendrickx@uclouvain.be.

Note: A position in the same project is also available in the group of Prof. A. Mauroy, at UNamur (alexandre.mauroy@unamur.be).

References:

PI's:
  – Julien Hendrickx: https://perso.uclouvain.be/julien.hendrickx/
  – Alexandre Mauroy : https://sites.google.com/site/alexmauroy/

ICTEAM/INMA: https://uclouvain.be/en/research-institutes/icteam/inma
Ecole Polytechnique de Louvain (EPL) : https://uclouvain.be/en/faculties/epl
UCLouvain: https://uclouvain.be/fr/index.html
Louvain-la-Neuve : https://en.tourisme-olln.be/

[1] Julien M. Hendrickx, Michel Gevers and Alexandre S. Bazanella, **Identifiability of dynamical networks with partial node measurements,** IEEE Trans. on Automatic Control, 64(6), 2240-2253, 2019.

[2] Antoine Legat and Julien M. Hendrickx **Path-Based Conditions for Local Network Identifiability,** Proceedings of the 56th IEEE Conference on Decision and Control (CDC 2021), 2021.

[3] Alexandre Mauroy and Julien M. Hendrickx, **Spectral identification of networks using sparse measurements,** SIAM Journal of Applied Dynamical Systems (SIADS), 16(1), 479-513, 2017.

[4] Alexandre Mauroy and Julien M. Hendrickx, **Spectral identification of networks with inputs** Proceedings of the 56th IEEE Conference on Decision and Control (CDC 2017), 2017.