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STADIUS
Center for Dynamical Systems, Signal Processing and Data Analytics

STADIUS Newsletter

March

AWARDS ▪ NEWS ▪ EVENTS ▪ PROJECTS ▪ STAFF UPDATE ▪ PUBLICATIONS

Welcome

Welcome to first SPRING edition of the STADIUS Newsletter.

Do not forget to participate in the **STADIUS Seminar** on Scholarly Publishing and Open Access by **Marc Moonen** on the 6th of April. The seminar takes place in Aula Van De Tweede Hoofdwet, and starts at 14:30!
Participation Obligatory :)



News

Tensorlab+
A reproducible research repository for tensor computations

Release of Tensorlab+

Tensorlab+ is a reproducible research repository for tensor computations, built on top of Tensorlab. The first release of Tensorlab+ includes the algorithms, auxiliary functions, and data needed to recreate the results of 150+ experiments that are

discussed in 34 of our research papers, allowing the reproduction of 180+ figures and tables. Moreover, we have included 32 tutorials and demos showing how the proposed algorithms can be used in your own applications.
The code is free to use for non-commercial research. We hope that you will find it useful and welcome all suggestions and feedback.
Stijn, Martijn, Nico, Michiel, Robin and Lieven.

- **http://www.tensorlabplus.net**



ERNSI 2022 in Leuven

The 2022 meeting of the European Research Network on System Identification (ERNSI) is being organized by ESAT/STADIUS.
The ERNSI 2022 workshop will take place from Sunday September 18 until Wednesday September 21, 2022 at the Irish College in Leuven, Belgium.
(Organised by Bart De Moor, Katrien De Cock and Philippe Dreesen.)

- **Event website**

Final closing Capricorn Digital Growth Fund at € 84.5 million

On February 28th Capricorn Digital Growth Fund closed at €84.5 million. This fund is looking for investment opportunities emerging from **turning data into actionable insights using AI, Digital Twin, IoT and data science technologies**. So far, four investments have been made out of the Capricorn Digital Growth Fund: Indigo Diabetes (Ghent) and DEO (Genk) are active on the digital health side, EclecticIQ (Amsterdam) and Gradyent (Rotterdam) are in the business 4.0 area. Bart De Moor is the independend Chairman of this fund.

- Capricorn press release

AI, the new systemic technology

The Scientific Board for Government Policy (WRR - Wetenschappelijke Raad voor Regeringsbeleid) presented on 1



February their report '**AI Challenge. The new systemic technology**' to Flemish Prime Minister Jambon. This report explains how "**AI is a systemic technology, on par with electricity and the combustion engine.** A system technology has a long-term and large-scale influence and unforeseeable effects on society. Therefore, an integral approach and involvement of the government is required." They also argued a case for raising a scientific visionary board (wetenschappelijke toekomstraad). Prof. De Moor presented his views and additions to the report in the following expert meeting.
Discover more in:

- WRR-delegatie op bezoek bij de Vlaamse minister-president
- WRR Report 105 'Opgave AI. De nieuwe systeemtechnologie'
- Verrekijkersmanifest



First ELO-X Seasonal School and Workshop

From 21 to 30 March the first ELO-X Seasonal School and Workshop took place in Leuven. ELO-X is a Marie Curie **Innovative Training Network**, funded by the European Commission (Horizon 2020) to **address the timely and pressing need for highly qualified and competent researchers**, able to develop embedded learning- and optimization-based control methodologies for SICS, thus enabling new technologies and the next generation of digital industrial products and processes.

Discover ELO-X

And more:

- As a part of the Flanders AI Research Program, STADIUS is heavily involved in many AI initiatives. Check out these websites:
  - AI voor Vlaanderen
  - Flanders AI Research
  - VAIA
- **VAIA has a new website** with an improved course overview and navigation, so don't forget to check it out!

Events @ STADIUS

For more information about STADIUS events

SOUNDS Research Training Workshop

When: 28th March till 1st April 2022,

Where: ESAT, various locations

please visit the
STADIUS Event webpages.

Scholarly Publishing and Open Access

STADIUS Seminar by Marc Moonen

When: 6th April 2022, 14:30 - 15:30

Where: Aula Van De Tweede Hoofdwet, Thermotechnisch Instituut, Kasteelpark Arenberg

Security & Privacy of AI: Challenges and solutions for ML applications

Training by the colleagues of DistriNet & COSIC (& CiTiP)

When: 4 to 8 April 2022

Where: KU Leuven, Celestijnenlaan 200, Heverlee

Kernel machines for dynamical systems modelling

An **AI for Time Series Seminar** by **Johan Suykens**

When: 21/04/2022, 14:30 - 15:30

Where: Online

Model learning in linear dynamic networks

An **AI for Time Series seminar** by **Paul Van den Hof, TU Eindhoven**

When: 5/05/2022, 14:30 - 15:30

Where: Online

We wish the best of luck to the researchers who will be leaving STADIUS soon

Best of luck!

Taewong Lee, doctoral researcher from the group of Toon van Waterschoot, is leaving STADIUS at the end of March. Taewong will take a position in GoodiX Technology Belgium BV.

Publication Digest

Here's the monthly STADIUS Publications Digest, including new reports that have been added to

the publications database.
Please remember to have your own reports added in the publications database and make sure your entries are kept up to date (status submitted/accepted/published) at all times.

Contact Ida for new additions and updates, do not add/update database content yourself.

22-26

Vermeersch C., De Moor B., "Two Double Recursive Block Macaulay Matrix Algorithms to Solve Multiparameter Eigenvalue Problems", Technical Report 22-26, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

22-27

Baeriswyl C., Bertrand A., Wildhaber R., "Windowed State Space Filters for Peak Interference Suppression in Neural Spike Sorting", Technical Report 22-27, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

22-28

Birdi J., D'hooge J., Bertrand A., "Spatially Variant Ultrasound Attenuation Mapping using a Regularized Linear Least-Squares Approach", Technical Report 22-28, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022. Accepted for publication in *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control* .
Lirias number: 3704049.

22-29

Schott J., Gransier R., Wouters J., Moonen M., "Electrically evoked auditory steady state response detection in cochlear implant recipients using a system identification approach", Technical Report 22-29, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022. Accepted for publication in *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control* .

22-31

Ranjbar V., Girycki A., Rahman M.A., Pollin S., Moonen M., Vinogradov E., "Cell-free mMIMO support in the O-RANArchitecture : A PHY layer perspective for 5G and beyound networks", Technical Report 22-31, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022. Accepted for publication in *IEEE Communications Standards Magazine*.
Lirias number: 3704051.

22-32

De Cooman B., Suykens J., Ortseifen A., "Enforcing hard state-dependent action bounds on deep reinforcement learning policies", Technical Report 22-32, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

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