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STADIUS
Center for Dynamical Systems, Signal Processing and Data Analytics

STADIUS Newsletter

November 2022

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Welcome

Welcome to the November issue of the STADIUS Newsletter.

We would like to invite you all to join a small **STADIUS-Christmas tree reception**. On **Wednesday 7th December** we will all gather **at 4 pm in the coffee corner** to have a glass of juice or cava around the beautiful tree (soon to arrive at STADIUS). See you there!



Newcomers Reception

Thank you for participating in the Newcomers Seminar and Reception that took place on 16th November! It was a great afternoon and evening with nice presentations, tasty food and live music! Thank you Newcomers for organising it!!

On the STADIUS Wiki you can find the presentation given by Toon van Waterschoot, the Presentation by the Newcomers and also a few pictures.

Revisit the presentations,
look at the pictures

News





Bart De Moor and Toon van Waterschoot meet Jan Jambon at the Library of Voices

On Monday November 21st 2022, Minister-President of Flanders Jan Jambon paid a visit to the audio lab at the **Library of Voices** in Abdij van Park in Leuven.
He received a tour and a demo in the Alamire Foundation, in the company of Toon van Waterschoot and Bart De Moor.

Earlier that day Jan Jambon also visited **Health House.**



left to right: 3 members of the Swiss Parliament, governor Jan Spooren, Dr. Paolo Rodoni Cassis, the President of Switzerland, Dr. Ignazio Cassis, vice-governor Tom Dehaene and prof. dr. Bart De Moor.

President of Switzerland visits Health House

On Friday November 25th 2022, the Flemish Brabant Province and KU Leuven hosted a lunch in honor of the president of Switzerland, Dr. Ignazio Cassis, and his spouse Dr. Paola Rodoni Cassis.
Attending and/or speaking at the lunch were: rector Luc Sels, Jan Spooren (Governor of Flemish Brabant), the President himself and world-renown virologist Prof. Dr. Peter Piot.
The presidential couple, both medical doctors, then visited **Health House,** before departing back to Brussels to attend an evening concert in the presence of King Filip and Queen Mathilde.

More News

- To help Type I diabetes patients to balance their blood sugar level before, during and after a physical activity, UCLL, KU Leuven, UZ Leuven, Karel de Grote Hogeschool and Hippo&Friends developed a **smart diabetes assistant**. On World Diabetes Day (21 November), the prototype and a new story about the diabetes assistant was presented in **Health House**.

Events @ STADIUS

PhD defense - Jonathan Dan

When: **13/12/2022, 13:30 - 17:30**

Where: **Aula de Molen**

For more information about STADIUS events please visit the STADIUS Event webpages.

E-DUALITY seminars and progress meeting (Part I)

When: **14/12/2022, 15:00 - 17:00**

Where: **ESAT, B00.35**

Don't forget to check the website of VAIA for a wide choice in courses on (aspects of) AI: www.vaia.be

E-DUALITY seminars and progress meeting (Part II)

When: **15/12/2022, 11:00 - 13:00**

Where: **ESAT, B00.35**

22/12/2022: PhD defense - Robbe Van Rompaey

When: **22/12/2022, 16:30 - 20:00**

Where: **Aula Van De Tweede Hoofdwet**

E-DUALITY seminars and progress meeting (Part III)

When: **23/12/2022, 15:00 - 17:00**

Where: **ESAT, B00.35**

New colleagues

A warm welcome to all new researchers and personnel at STADIUS!



Hello!
My name is Akshara, and in Sanskrit that means Goddess of Wisdom. As my name suggests my path is to remain in Academia and hence, I have joined as a researcher/PhD Student with my research being on Mathematics education specifically for Engineers. I finished my master's in applied mathematics in Plasma-Astrophysics from KU Leuven this summer! My thesis entailed how Magnetohydrodynamics Spectroscopy could be used to study cylindrical plasma loops in the atmosphere of the Sun. I was a high school teacher before I decided to study further. It was one of the main reasons that motivated me to remain working towards excellent Mathematics education. I am active in sports and cultural activities as well as some horrible bathroom singing. I am passionate about making people love and enjoy mathematics. I spend most of my money traveling and exploring Europe (full utilisation of the Schengen)
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New Projects @STADIUS

- **(AI4EXO)** Improving wearability and acceptance of AI-driven human-centered robotics
  - Coordinator: Vrije Universiteit Brussel
  - Promotor at STADIUS: **Bart Vanrumste**
  - Other partners: Liège Université

- Funding: Vlaamse overheid
- Duration: 01/11/2022 - 31/10/2023

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.

22-109
Ruiz S., van Waterschoot T., Moonen M., "Centralized cascade multi-channel noise reduction and acoustic feedback cancellation in a wireless acoustic sensor and actuator network", Technical Report 22-109, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

22-111
MacWilliam K., Elvander F., van Waterschoot T., "Simultaneous Acoustic Echo Sorting and 3-D Room Geometry Inference", Technical Report 22-111, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

22-113
Jalmby M., Elvander F., van Waterschoot T., "Fast Low-latency Convolution by Low-rank Tensor Approximation", Technical Report 22-113, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

22-114
Theodorakos K., Agudelo M., Schreurs J., Suykens J.A.K., De Moor B., "Ozone forecasting across Belgium with co-evolutionary Neural Architecture Search", *Proc. of the BNAIC/BeNeLearn 2022 (BNAIC/BeNeLearn 2022)*, Mechelen, Belgium, Nov. 2022.
Lirias number: 3955813.

22-116
Hendrikx S., Widdershoven R., Vervliet N., De Lathauwer L., "Tensorlab+: A case study on reproducibility in tensor research", Technical Report 22-116, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

22-117
Brunnstrom J., van Waterschoot T., Moonen M., "Signal-to-interference-plus-noise ratio based optimization for sound zone control", Technical Report 22-117, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

22-119
Rinaldi G., Crema Garcia F., Agudelo M., Becker T., Vanthournout K., Mestdagh W., De Moor B., "A Framework for a Data Quality Module in Decision Support Systems: an application with Smart Grid Time series", Technical Report 22-119, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

22-120
Laude E., Patrinos P., "Anisotropic proximal gradient", Technical Report 22-120, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

22-121
Vaulet T., Divard T., Thaunat O., Koshy P., Lerut E., Senev A., Aubert O., Van Loon E., Callemyn J., Emonds M.P., Van Craenenbroeck A., De Vusser K., Sprangers B., Rabeyrin M., Dubois V., Kuypers D., De Vos M., Loupy A., De Moor B., Naesens M., "Data-driven chronic allograft phenotypes : A novel and validated complement for histologic assessment of kidney transplant biopsies", *Journal of the American Society of Nephrology*, Oct. 2022, 14 p.
Lirias number: 3924256.

22-122

Botman L., Lago J., Becker T., Agudelo M., Vanthournout K., De Moor B., "A scalable method for probabilistic short-term forecasting of individual households consumption in low voltage grids", Technical Report 22-122, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022. Accepted for publication in *IEEE PES Grid Edge Technologies Conference & Exposition*.
Lirias number: 3958207.

22-123

Strypsteen T., Bertrand A., "Bandwidth-efficient distributed neural network architectures with application to neuro-sensor networks", Technical Report 22-123, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022. Accepted for publication in *IEEE Journal of Biomedical and Health Informatics*.
Lirias number: 3958229.

22-124

Alkmim M., Cardenuto J., Tengan Pires de Souza E., Dietzen T., van Waterschoot T., Cuenca J., De Ryck L., Desmet W., "Drone noise directivity and psychoacoustic evaluation using a hemispherical microphone array", *Journal Of The Acoustical Society Of America*, vol. 152, no. 5, Nov. 2022, pp. 2735-2745.
Lirias number: 3945177.

22-125

Horn M., De Brouwer E., Moor M., Moreau Y., Rieck B., Borgwardt K., "Topological Graph Neural Networks", in *Proc. of the International Conference on Learning Representations (ICLR 2022)*, Virtual, Mar. 2022.
Lirias number: 3747421.

22-126

Zhang W., Patterson N., Verbeeck N., Moore J., Ly A., Caprioli R., De Moor B., Norris J., Claesen M., "Multimodal MALDI imaging mass spectrometry for improved diagnosis of melanoma", Technical Report 22-126, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

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KU Leuven, ESAT/STADIUS, Kasteelpark Arenberg 10, bus 2446, B-3001 Leuven
ida.tassens@kuleuven.be .