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STADIUS
Center for Dynamical Systems, Signal Processing and Data Analytics

STADIUS Newsletter

October 2022

AWARDS ▪ EVENTS ▪ STAFF UPDATE ▪ PUBLICATIONS

Welcome

This month we are very happy to welcome another new STADIUS Professor: **Maria Torres Vega** and **11 new researchers.** Please scroll down to meet all of them!

You are very warmly invited by all the newcomers to join the **Newcomers Seminar and Reception** on at on Wednesday 16th of November.

🌟 Please **fill in the form by 4/11** to let us know if we can count on your presence (and which parts of the event you will attend).

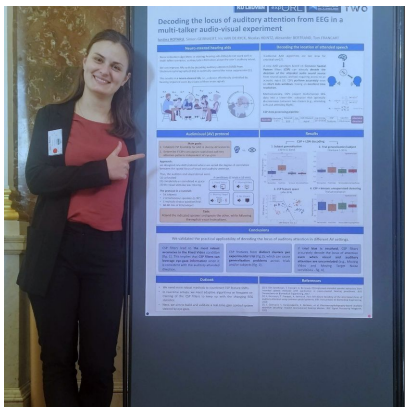


New Professor

Maria Torres Vega received her M.Sc. degree in telecommunication engineering from the Polytechnic University of Madrid, Spain, in 2009 and her Ph.D. from Eindhoven University of Technology, The Netherlands, in 2017. Between 2017 and 2022, she was a postdoctoral researcher on immersivemultimedia delivery with the Department of Information Technology, Ghent University - imec, Belgium. Since October 2022, she is a tenure-track Assistant Professor in the Faculty of Engineering Technology, and a member of the ESAT-STADIUS division at Group T. Her research interests include Quality of Experience in immersive multimedia systems and autonomous management of future networks. Her current research focuses on devising human-driven control and

management mechanisms for enhancing the perception of immersive systems.

Awards



Best poster award for Iustina Rotaru

Iustina Rotaru, Iustina Rotaru a PhD researcher in the team of Alexander Bertrand (STADIUS) in a collaborative project with Prof. Tom Francart (Dept. Neurosciences, KU Leuven) received the best poster award at the 20th National Day of Biomedical Engineering.

Congratulations!

More News

- Interview with Professor Bart De Moor in the SET Newsletter of the Science, Engineering and Technology Group, about the Flemish AI Policy Plan

Events @ STADIUS

Distributed deep learning and its application to wireless body-sensor networks

When: **04/11/2022, 10:00 - 11:00**

Where: **B00.35**

EOS SeLMA seminars

When: **15/11/2022, 16:00 - 18:00**

Where: **ESAT, Aula L**

STADIUS Newcomers Seminar

When: **16/11/2022, 14:30 - 17:00**

Where: **ESAT, Aula R + Cafetaria**

Physical dynamic systems learning from interactions with the real world

Speaker: **Guillaume Crevecoeur of UGhent**

🌟 New webinar series of VAIA & STADIUS on automation

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

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

When: **21/11/2022, 15:00-16:00**

Where: **online**

New colleagues

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



Hi there!

My name is **Alexander Bodard**, and I recently started as a PhD student in the group of Prof. Panos Patrinos. My research will focus on nonsmooth, structured low-rank optimization. Prior to this, I obtained my Master's degree in Mathematical Engineering at KU Leuven. In my spare time I enjoy going for a run or playing tennis.
Looking forward to meeting you all!

Alexander



Hi,
my name is **Sarthak De** and I joined as a PhD researcher at STADIUS with Prof. De Moor. My master thesis at the group allowed me to gain some insights into the Macaulay framework and its "elegance" hooked me on to do more. With the PhD I hope to align my mathematical and philosophical interests, i.e., algebra and the passage of time. Most phenomenon around us are non-linear and that's what makes them interesting, it is often not trivial to investigate where a non-linear system goes as time passes, making their study all the more interesting. The passage of time is closely linked to my interests outside of work, i.e., reading a lot about historical events and phenomena. Currently, I am reading a book titled "Dinner in Rome", which is a history about Italy and its food. I also love all sorts of endurance sports, I might not be the best at any but on a random weekend you could find me either hiking, biking or climbing!



Hi,
I am **Guido Gagliardi** and I am a Ph.D. student in the International Ph.D. Program in Smart Computing at the University of Pisa, Florence, and Siena (Italy) and in the Doctoral Programme in Engineering Science at KU Leuven (Belgium) under supervision of Maarten De Vos.
My research is mainly focused on employing explainable artificial intelligence for the analysis of human brain activity and physiological signals in general.
Using his research together with the Affective Computing applications, I would like to develop a tool to surpass the emotional bias between people and to let them directly communicate their emotions.

See you around,

Guido



Hi!

My name is **Helene Huts** and I recently started a PhD on data-driven approaches for personalized medicine, supervised by prof. Maarten De Vos and prof. Wim Janssens (Laboratory of Respiratory Diseases and Thoracic Surgery (BREATHE)). We will be using machine learning models to estimate individualized treatment effects from patient features. I previously obtained a master's degree at KU Leuven in Biomedical Engineering. In my spare time, I like to play the flute and the cello. Looking forward to meeting you all!

Helene



Hi,

I am **Benoît Legat** and I just started a postdoc with Prof. Bart De Moor on the Back To The Roots project. Before this, I did a postdoc at MIT with Prof. Pablo Parrilo on solving Sum-of-Squares programs with the Burer-Monteiro method. I received my Ph.D. from UCLouvain with Prof. Raphaël Jungers on the computation of sets using Sum-of-Squares programming with application in control and information theory. My passion is climbing so I would like to try to Leuven's climbing gym!
Looking forward to meet you all.

Benoît Legat



Hi All,
I am **Valerio Lorenzoni.** I received a B.Sc. degree in aerospace engineering from Università La Sapienza in Rome in 2005, a M.S. degree at TUDelft in 2008 with specialization in aeroacoustics, and I worked till 2014 at Siemens Wind Power on the aeroacoustics of wind turbines. In 2019 I received a Ph.D. in Art Science from UGent, focusing on human computer interaction and musical bio-feedback systems. Over the years, I have been active in the design and development of 3D printed saxophone mouthpieces and (electronic) music interfaces. This month I joined the team of Toon van Waterschoot and I will work on …..

Ciao,
Valerio

Hello!
My name is **Konstantinos Oikonomidis** and I recently joined the group of Prof. Panagiotis Patrinos as a PhD student. My PhD is about (nonconvex and nonsmooth) optimization and our aim is to use the theory of Dynamical Systems in order to generate accelerated optimization algorithms. I got my diploma in Electrical Engineering and my master's degree in Applied Mathematics from the



National Technical University Athens. During my spare time I like doing sports like kickboxing and BJJ, watching football and playing music.

Best,
Konstantinos



Hi everyone!

My name is **Brent Sterckx.** Some of you might recognize me from when I used to be a student here at ESAT. I recently graduated from KU Leuven with a master's degree in Electrical Engineering after previously obtaining the bachelor's degree in Engineering Science (Major: in Electrical Engineering – Minor: Computer Science), also from KU Leuven.
At the beginning of this month, I started as a PhD student at STADIUS in the group of prof. Marc Moonen, in collaboration with ExpORL (Department of Neurosciences) where I'm supervised by prof. Jan Wouters and dr. Robin Gransier. My project is on applying neural source analysis in cochlear implantees to gain more insight into the neural processing of electric hearing and to improve stimulation strategies using those new insights.

See you around!
Brent



Hi,
I'm **Hans van Rooij** and I'm a PhD researcher of Bart De Moor's group working on the "Back to the Roots" project. I have a master's degree in Mathematical Engineering and a bachelor's degree in Electrical Engineering. Additionally I'm a TA for the EAGLE project, where I guide the third year bachelor students towards flying a drone in a stable way. My research interests include optimization, system theory/identification and control theory. During my spare time I like to play volleyball and football.
Look forward to meet you all!

Hans



Hi,

My name is **Sem Viroux**. I joined the "Back to the Roots" project of Prof. Bart De Moor in October. I'm reading in on the topic and have yet to decide on a specific research direction within the project.
I got both my bachelor's and master's degrees at KU Leuven, in respectively computer science and mathematical engineering.
When I'm not working on this PhD, I'm attending concerts, practising the guitar, dancing, swimming, or playing board

games.

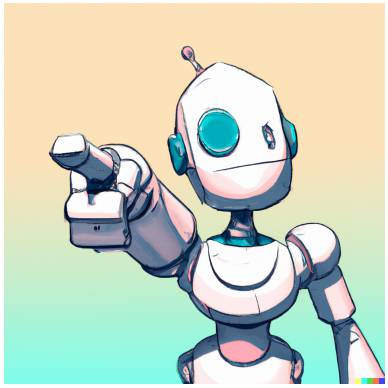
See you around,
Sem



Hi!
My name is **Milan Wils** and I just started my PhD with supervisors Prof. Tjonnie Li and Prof. Marc Moonen. The aim of my research is to develop new signal processing algorithms for the detection of gravitational waves that are generated by core-collapse supernovae. I obtained both my Bachelor and Master (Electrical Engineering) degrees here in Leuven. In my free time, I am a volunteer in the Board of European Students of Technology (BEST).
Hope to get to know you all very soon!

Milan

Call for experts



VAIA is currently looking for teachers in the Data Science Track of VAIA and Flames. Do you have experience with these technologies, and are you looking for a first/extra teaching experience, sign up for their call of experts!

- Unsupervised Learning Techniques
- Introduction to Neural Networks and Deep Learning
- Methods to Reduce the Dimensionality of your Data

More about the Data Science Track by VAIA & Flames

Sign up as an **expert that wants to teach**!

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.

22-96

Behmandpoor P., Patrinos P., Moonen M., "Federated Learning Based Resource Allocation for Wireless Communication Networks", in *Proc. of the 30th European Signal Processing Conference (EUSIPCO)*, Belgrade, Serbia, Sep. 2022.
Lirias number: 3874276.

22-97

Barile B., *Machine learning methods for multiple sclerosis classification and prediction using MRI brain connectivity*, PhD thesis, Faculty of Engineering, KU Leuven (Leuven, Belgium), Oct. 2022, 263 p.
Lirias number: 3805149.

22-98

Vandenberghe A., Wamba Momo L. N., Scheltjens V., De Moor B., "Multimodal Deep Learning for Early Length of Stay Prediction using Patient Similarity Embeddings", Technical Report 22-98, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

22-99

Tang D., *Deep learning for sound source localisation and speech emotion recognition: A perspective on representation learning and sequence modelling*, PhD thesis, Faculty of Engineering, KU Leuven (Leuven, Belgium), Oct. 2022
Lirias number: 3790925.

22-100

Liu J., Tao Q., Zhu C., Liu Y., Suykens J.A.K., "Tensorized LSSVMs for Multitask Regression", Technical Report 22-100, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

22-101

Weerasekera A., Ion-Margineau A., Green C., Mody M., Nolan G.P., "Predictive models demonstrate age-dependent assocation of subcortical volumes and cognitive meaures", *Human Brain Mapping*, 2022, pp. 1-12.
Lirias number: 3909577.

22-102

Van Rompaey R., Moonen M., "Distributed Combined Channel Estimation and Optimal Uplink Receive Combining for User-Centric Cell-free Massive MIMO Systems", Technical Report 22-102, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

22-103

Bonte C., Makri E., Ardeshirdavani A., Simm J., Moreau Y., Vercauteren F., "Towards practical privacy-preserving genome-wide assocation study", *BMC Bioinformatics*, vol. 19, 2018, 537 art nb p.
Lirias number: 2350141.

22-104

Masset H., Ding J., Dimitriadou E., Ardeshirdavani A., Debrock S., Tsuiko O., Smits K., Peeraer K., Moreau Y., Voet T., Esteki M.Z., Vermeesch J., "Single-cell genome-wide concurrent haplotyping and copy-number profiling through genotyping-by-sequencing", *Nucleic Acids Research*, vol. 50, no. 11, Feb. 2022, e63 p.
Lirias number: 3911651.

22-105

Hovine C., Bertrand A., "A Distributed Adaptive Algorithm for Non-Smooth Spatial Filtering Problems", Technical Report 22-105, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

22-106

Geirnaert S., Francart T., Bertrand A., "Stimulus-Informed Generalized Canonical Correlation Analysis of Stimulus-Following Brain Responses", Technical Report 22-106, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

22-107

Musluoglu C. A., Bertrand A., "A Computationally Efficient Algorithm for Distributed Adaptive Signal Fusion based on Fractional Programs", Technical Report 22-107, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

22-108

Musluoglu C. A., Bertrand A., "A Distributed Adaptive Algorithm for Node-Specific Signal Fusion Problems in Wireless Sensor Networks", Technical Report 22-108, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2022.

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