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STADIUS
Center for Dynamical Systems, Signal Processing and Data Analytics

STADIUS Newsletter

May 2025

RESEARCH ▪ AWARDS ▪ NEWS ▪ EVENTS ▪ STAFF UPDATE ▪ DEFENDED PHD ▪ PUBLICATIONS

Welcome to the May edition of the STADIUS Newsletter!

Awards



More teaching awards for STADIUS in the academic year 2024/2025

We're excited to share more good news following last month's announcement about the awards for Johan Suykens and Simon Geirnaert.

Marc Moonen has received the Gouden Krijtje for
🤓 Best Professor (Semester 1) in the Master of Electrical Engineering program!



Toon van Waterschoot (pictured on the left, with a student playfully imitating him in Revue style) has been honored with not one, but two Golden T Awards:
🏆 Best Haircut 2024–2025
📘 Best Course Material 2024–2025

Congratulations to all for their excellence, style, and ongoing dedication to inspiring the next generation of engineers!

News



New KU Leuven spinoff with STADIUS: Gynaia

Gynaia, a new spinoff from UZ Leuven and KU Leuven, has officially launched this month, with a mission to enhance patient outcomes in gynecology.
Built on the scientific expertise of the **International Ovarian Tumor Analysis (IOTA)** consortium, Gynaia delivers AI-powered models that improve the diagnosis of ovarian tumors, endometriosis, and early pregnancy complications — enabling faster, more accurate, and consistent clinical decisions.
The initiative is being kicked off by a strong interdisciplinary team — including **Bart De Moor** (co-founder), **Willem Mestdagh** and **Axel Geysels** from STADIUS — combining years of research in machine learning, data analysis, and medical applications.
Click on the link to watch a **video from IOTA congress**, including some interviews about the new company.

To read more about the related research performed at STADIUS read the publications:

- Geysels A., et al. "*OC05.03: *Deep learning-enabled ovarian cancer detection with ADNEX-AI: a prospective, multicentre study*",
  ISUOG World Congress on Ultrasound in Obstetrics and Gynecology 2024 (ISUOG24), Budapest, Hungary, Sep. 2024. Lirias number: 4201595.

- Geysels A., et al. "Artificial intelligence applied to ultrasound diagnosis of pelvic gynecological tumors: a systematic review and meta-analysis", Gynecologic and Obstetric Investigation, vol. *, no. *, May 2025, pp. 1-29. Lirias number: 4237485.



Simon Geirnaert in a podcast KarakterCast

In the 9th episode of the podcast KarakterCast by the Academische Stichting Leuven, STADIUS-researcher **Simon Geirnaert** (a postdoc in the group of Prof. Alexander Bertrand) talks about his **research on neuro-steered hearing aids** on the occasion of winning the Research Council Award for Science & Technology.

The episode **"Listening in the chaos: Can our brains steer future hearing aids?"** can be found on Spotify: https://open.spotify.com/episode/2FDYgSrpLCaIi2y2Jig2E5?si=1db9593e06d24a1c



STADIUS contributes to the exposition in the Royal Library in Brussels.

The Alamire Foundation (chair prof. **Bart De Moor**) and Stadius (prof. **Toon van Waterschoot**) contributed to the fantastic exposition of polyphonic music manuscripts in the Royal Library in Brussels.
Read more about in this article or here.



Biomed/STADIUS at Nerdland Festival

During the Nerdland Festival (6–9 June), the largest science festival in the Benelux, researchers from **Biomed/STADIUS — Simon Geirnaert, Thomas Strypsteen, Lennert Beeckmans, Lore Van Santvliet, Nicolas Heintz, Helene Huts, Tim Hermans**, and **Maarten Vanmarcke** — are hosting an interactive experience "Ogen aan het stuur" where visitors can:

- Control a mini race car on a circuit
- Play a retro-style video game — using only their eye movements!

The setup uses eye-movement sensors and real-time decoding to demonstrate how our gaze can steer and control.

Drop by anytime – we'll be there throughout the entire festival!
Tickets available at nerdlandfestival.be/tickets



Stein Aerts on Science, Curiosity, and Legacy

Former STADIUS PhD and now the head of the Laboratory of Computational Biology at the VIB and University of Leuven, **Stein Aerts** is featured in a new episode of VIB's YouTube podcast series.
In a conversation that spans from the jungles of Ecuador and Colombia to the intricacies of fruit fly genetics, Stein shares insights on curiosity-driven research, embracing failure, and building a scientific legacy.

Watch here: https://www.youtube.com/watch?v=rwpFWmkjctI&list=PL_c28aSYDLhCZbQiFDoismfvz-jVfv40t&index=4

STADIUS Colloquium Series

The last lecture in the **STADIUS Colloquium Series** is planned for next week!

- **04/06/2025: Masoud Ahookhosh**
  - Title: "**Inexact two-level proximal smoothing framework for nonsmooth and nonconvex optimization"**
  - Time: **15:00 - 16:00**
  - Location: **Aula L (ELEC 00.24)**

For more detailed abstract and biographies, please stay tuned and consult the STADIUS Event website

New colleagues

A warm welcome to new personnel at STADIUS!



Hi everyone,
My name is **Mohammad H. Badiei.** I received simultaneous dual B.Sc. degrees with honours in Computer Engineering and Electrical Engineering from Tehran Polytechnic in 2021. In 2020, I was awarded the gold medal in the National Electrical Engineering Olympiad. During my final undergraduate year, I was admitted to the simultaneous dual-level program and completed my M.Sc. in Electrical Engineering at the University of Tehran in 2023. In the same year, I ranked first in the 6th International Festival of Young Scientists in Mathematics and Computer Science, and in 2024, I was recognized as a UNESCO Distinguished Young Scientist. My research interests focus on understanding how deep neural networks work, particularly in areas such as AI robustness, AI alignment, and AI interpretability.

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Recently approved projects

Congratulations on the recently approved grants:

- **FWO Postdoctoral Felowship** "Distributionally Robust Optimization Made Practical: Reliability without the Conservatism"
  - Grantee: Mathijs Schuurmans

- **FWO SBO Project** "SQUARE: Super-resolved quantified assessment of valvular regurgitation using echocardiography"
  - Coordinator: Jan D'hooge
  - STADIUS PI: Alexander Bertand
  - Co-Applicants: Ghent University, Università Degli Studi di Firenze

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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.

25-112
Geysels A., Garofalo G., Timmerman S., Ceusters J., Buonomo F., Fischerova D., Testa A.C., Moro F., Sladkevicius P., Jokubkiene L., Van Holsbeke C., Kudla M., Czekierdowski A., Epstein E., Groszmann Y., Blaschko M., Bourne T., De Moor B., Valentin L., Van Calster B., Timmerman D., Froymann W., ``AI-enhanced ultrasound feature identification for risk prediction of ovarian cancer using the IOTA ADNEX model'', Technical Report 25-112, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2025.

25-113
Geysels A., Garofalo G., Ramakers F., Taliento C., Guerra S., Timmerman S., Testa A.C., Moro F., Buonomo F., Fischerova D., Valentin L., Sladkevicius P., Jokubkiene L., Kudla M., Van Holsbeke C., Czekierdowski A., Epstein E., Groszmann Y., De Moor B., Van Calster B., Froyman W., Timmerman D., ``A flexible dual-branch AI for ovarian tumor risk assessment using grayscale and Doppler ultrasound : a prospective international multicenter study'', Technical Report 25-113, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2025.

25-114
Geysels A., Garofalo G., Timmerman S., Buonomo F., FischerovÃi D., Testa A.C., Moro F., Valentin L., Sladkevicius P., Jokubkiene L., Kudla M., Van Holsbeke C., Czekierdowski A., Epstein E., Groszmann Y., De Moor B., Van Calster B., Timmerman D., Froyman W., ``Evaluating the impact of measurement calipers in AI-based ovarian cancer diagnosis : a prospective international multicenter analysis'', Technical Report 25-114, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2025.

25-115
Geysels A. Van Calster B., De Moor B., Froyman W., Timmerman D., ``Calibration in Multiple Instance Learning : Evaluation Aggregation Methods for Ultrasound-Based Diagnosis'', Technical Report 25-115, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2025.

25-116
Davidoff H., Van Kraaij A., Lutin E., Van den Bulcke L., Vandenbulcke M., Van Helleputte N., De Vos M., Van Hoof C., Van Den Bossche M., ``Environmental triggers of specific subtypes of agitation in people with dementia: an observational study'', Technical Report 25-116, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2025. Accepted for publication in *JMIR Formative Research*.
Lirias number: 4234091.

25-117
Gyselinck I., Huts H., De Vos M., Janssens W., ``Time T-to understand treatment response'', *Lancet Respir Med*, 2025.
Lirias number: 4233904.

25-118

Geirnaert S., Kappel L. S., Kidmose P., ``A Direct Comparison of Simultaneously Recorded Scalp, Around-Ear, and In-Ear EEG for Neural Selective Auditory Attention Decoding to Speech'', Technical Report 25-118, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2025.



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