Show message in browser

STADIUS
Center for Dynamical Systems, Signal Processing and Data Analytics

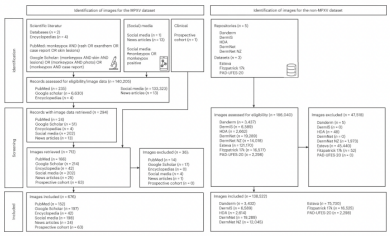
STADIUS Newsletter

March 2023

AWARDS ▪ EVENTS ▪ STAFF UPDATE ▪ PUBLICATIONS

Welcome to March edition of the STADIUS Newsletter

News



Article by Olivier Gevaert in Nature Medicine

STADIUS PhD graduate **Oliver Gevaert** recently published his co-authored paper "A deep-learning algorithm to classify skin lesions from mpox virus infection" **in Nature Medicine.**



ERC Advanced Grant for Frank Verstraete

Frank Verstraete, **ex-PhD student of Bart De Moor,** and currently rofessor at the Faculty of Sciences of Ghent University, obtained an ERC advanced grant for his research project "It's the symmetry stupid! (ISYS)".

This is **his third ERC Grant**.

Frank is also involved in a recently approved iBOF project "Tensor Tools for Taming the Curse" together with Lieven De Lathauwer, Johan Suykens, Bart De Moor, and Fatemeh Mohammadi.

Events @ STADIUS

A Framework for a Data Quality Module in Decision Support Systems: an application with Smart Grid Time series

When: **04/04/2023, 14:00 - 15:30**

Where: **B00.35**

By: **Giulia Rinaldi**

Does over-parameterization help or hurt robustness of deep neural networks? A function space view.

When: **05/04/2023, 16:00 - 17:30**

Where: **B00.35**

By: **Fanghui Liu**

STADIUS Seminar about spinoff Aspect Analytics

When: **3/05/2023, 14:00 - 15:30**

Where: **Aula Thermotechnisch Instituut**

By: **Marc Claesen**

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

^

New colleagues

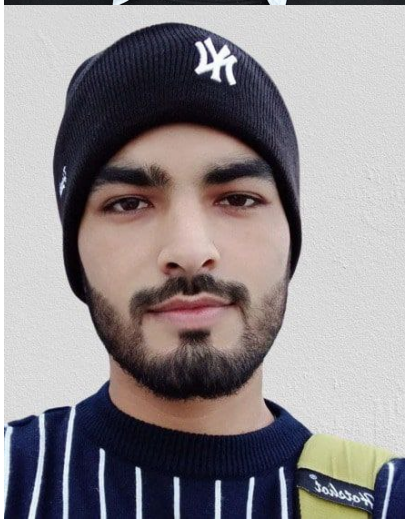
A warm welcome to new researchers and personnel at STADIUS!

Amir Shahhosseini

Hello, I am Amir Shahhosseini and I have just begun my Ph.D. under the supervision of Prof. Rodolphe Sepulchre. I have a B.Sc. and M.Sc. in Mechanical Engineering focusing on system theory and nonlinear dynamics. My prior research was focused on numerical methods for the feasible control of fractional order systems and efficient computational algorithms for the simulation of piecewise



linear systems. My Ph.D. project is primarily concentrated on the mathematics of control theory with a focus on bringing back and updating classical concepts such as transfer functions. I look forward to meeting you all in the coming weeks and months! Amir



Shakir Showkat Sofi

My name is Shakir Showkat Sofi, and I have recently started my PhD program under the supervision of Prof. Lieven De Lathauwer. My research focuses on developing numerical algorithms for tensor decompositions and applications, specifically low-rank tensor decompositions for data completion, signal processing, and machine learning applications. Prior to beginning my PhD program, I completed my master's degree in data science at Skoltech, Moscow, where I worked with Dr. Ivan Oseledets on spatiotemporal data completion and forecasting. I developed a keen interest in low-rank matrix and tensor decompositions, data mining, and machine learning, which led me to pursue a PhD in a related field.
In addition, I enjoy playing cricket.

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.

23-34

Ashtari P., Sima D., De Lathauwer L., Sappey-Marinier D., Maes F., Van Huffel S., "Factorizer : A scalable interpretable approach to context modeling for medical image segmentation", *Medical Image Analysis*, vol. 84, 2023, pp. 1-16 (102706). Lirias number: 3978620.

23-35

Oldenhof M., Acs G., Pejo B., Schuffenhauer A., Holway N., Sturm N., Dieckmann A., Fortmeier O., Boniface E., Mayer C., Gohier A., Schmidtke P., Niwayama R., Kopecky D., Mervin L., Rathi P.C., Friedrich L., Formanek A., Antal P., Rahaman J., Zalewski A., Heyndrickx W., Oluoch E., Stossel M., Vanco M., Endico D., Gelus F., de Boisfosse

T., Darbier A., Nicollet A., Blottiere M., Telenczuk M., Nguyen V.T., Martinez T., Boillet C., Moutet K., Picosson A., Gasser A., Djafar I., Simon A., Arany A., Simm J., Moreau Y., Engkvist O., Ceulemans H., Marini C., Galtier M., "Industry-Scale Orchestrated Federated Learning for Drug Discovery", in *Proc. of the 35th Annual Conference on Innovative Applications of Artificial Intelligence (IAAI-23)*, Washington, USA, Feb. 2023, 9 p.
Lirias number: 4069672.

23-36

Damiano S., Guntoro A., van Waterschoot T., "Emergency Sound Identification for Automotive Applications Based on a Small-Scale Convolutional Neural Network", Technical Report 23-36, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2023.

23-37

Widdershoven R., Govindarajan N., De Lathauwer L., "Overdetermined systems of polynomial equations: tensor-based solution and application", Technical Report 23-37, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2023.

23-38

Domanov I., Vervliet N., Evert E., De Lathauwer L., "Decomposition of a tensor into multilinear rank-(Mr,Nr,.) terms", Technical Report 23-38, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2023.

23-39

Sharma M., Moonen M., "Prototype filter design for weighted overlap-add filter bank based sub-band adaptive filtering applications", Technical Report 23-39, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2023.

23-40

Simpson-Yap S., Pirmani A., Kalincik T., De Brouwer E., Geys L., Parciak T., Helme A., Rijke N., Hillert J., A., Moreau Y., Edan G., Sharmin S., Spelman T., McBurney R., Schmidt H., Bergmann A., B., Braune S., Stahmann A., Middleton R., M., Salter A., Bebo B., van der Walt A., Butzkueven H., Ozakbas S., Boz C., Karabudak R., Alroughani R., Rojas J., van der Mei I., A., do Olival G., S., Magyari M., Alonso R., N., Nicholas R., S., Chertcoff A., S., de Torres A., Z., Arrambide G., Nag N., Descamps A., Costers L., Dobson R., Miller A., Rodrigues P., Prckovska V., Comi G., Peeters LM., "Updated results of the COVID-19 in MS Global Data Sharing Initiative: anti-CD20 and other risk factors associated with COVID-19 severity", *Neurology-Neuroimmunology and Neuroinflammation*, vol. 9, no. 6, Nov. 2022, pp. 1-13.
Lirias number: 3946722.

23-41

Geys L., Parciak T., Pirmani A., McBurney R., Schmidt H., MalbaÃ…Âia T., Ziemssen T., Bergmann A., Rojas J., I., Cristiano E., GarcÃƒÂa-Merino J., A., Fernandez O., Kuhle J., Gobbi C., Delmas A., Simpson-Yap S., Nag N., Yamout B., Steinemann N., Seeldrayers P., Dubois B., van der Mei I., Stahmann A., Drulovic J., Pekmezovic T., Brola W., Tintore M., Kalkers N., Ivanov R., Zakaria M., Naseer M., A., Van Hecke W., Grigoriadis N., Boziki M., Carra A., Pawlak M., A., Dobson R., Hellwig K., Gallagher A., Leocani L., Dalla Costa G., de Carvalho Sousa NA., Van Wijmeersch B., Peeters LM., "The Multiple Sclerosis Data Alliance Catalogue: enabling web-based discovery of metadata from real-world multiple sclerosis data sources", *International journal of MS care*, vol. 23, no. 6, Nov. 2021, pp. 261-268.
Lirias number: 3676520.

23-42

Simpson-Yap S., De Brouwer E., Kalincik T., Rijke N., Hillert J., Walton C., Edan G., Moreau Y., Spelman T., Geys L., Parciak T., Gautrais C., Lazovski N., Pirmani A., Ardeshirdavani A., Forsberg L., Glaser A., Mcburney R., Schmidt H., Bergmann A., Braune S., Stahmann A., Middleton R., Salter A., Van der Walt A., Rojas J., Van der Mei I., Ivanov R., Sciascia Do Olival G., Dias A., Magyari M., Brum D., Mendes M., F., Alonso R., Nicholas R., Bauer J., Chertcoff A., Zabalza A., Arrambide G., Comi G., Peeters LM., "First results of the COVID-19 in ms global data sharing initiative suggest anti-CD20 dmts are associated with worse covid-19 outcomes", *8th Joint ACTRIMS-ECTRIMS Meeting (MSVirtual)*, ELECTR, NETWORK, Sep. 2020, pp. 48-49.
Lirias number: 3368749.

23-43

Simpson-Yap S., De Brouwer E., Kalincik T., Rijke N., Hillert J., Walton C., Edan G., Spelman T., Geyes L., Parciak T., Gautrais C., Lazovski N., Pirmani A., Ardeshirdavani A., Forsberg L., Glaser A., McBurney R., Schmidt H., Bergmann A., Braune S., Stahmann A., Middleton R., Salter A., Fox R., van der Walt A., Butzkueven H., Rojas J., van der Mei I., Nag N., Ivanov R., do Olival G., S., Dias A., E., Magyari M., Brum D., G., Mendes M., F., Alonso R., Nicholas R., Bauer J., Chertcoff A., Zabalza A., Arrambide G., Fidao A., Comi G., Peeters L., "Associations of DMT therapies with COVID-19 severity in multiple sclerosis", *International Journal of Epidemiology*, Electr, Network, Sep. 2021, 1 p.
Lirias number: 3600745.

23-44

Schott J., Gransier R., Wouters J., Moonen M., "Detection of electrically evoked auditory steady-state responses in cochlear-implant recipients with a system identification based method", Technical Report 23-44, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2023.

23-45

Puri C., Keyaerts S., Szymanski M., Godderis L., Verbert K., Luca S., Vanrumste B., "Daily pain prediction in workplace using Gaussian processes", in *Proc. of the 16th International Joint Conference on Biomedical Engineering Systems and Technologies (BIOSTEC 2023)*, Lisbon, Portugal, Feb. 2023, 9 p.
Lirias number: 4070370.

23-46

Heintz N., Geirnaert S., Francart T., Bertrand A., "Unbiased unsupervised stimulus reconstruction for EEG-based auditory attention decoding", Technical Report 23-46, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2023. Accepted for publication in *2023 International Conference on Acoustics, Speech, and Signal Processing Proceedings (ICASSP 2023)*, Rhodos, 4-10/06/2023.
Lirias number: 4072333.

23-47

Lagauw S., Agudelo O. M., De Moor B., "Globally Optimal SISO H2-Norm Model Reduction Using Walsh's Theorem", Technical Report 23-47, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2023.

23-49

Brunnström J., van Waterschoot T., Moonen M., "Sound zone control for arbitrary sound field reproduction methods", Technical Report 23-49, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2023.

23-50

Schuurmans M., Patrinos P., "Distributionally Robust Optimization using Cost-Aware Ambiguity Sets", Technical Report 23-50, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2023.

23-51

Godaine J., Chitale Y., De Moor B., Mathieu C., Ancheva L., Van Damme P., Claeys K., Bossuyt X., Carpentier S., Poesen K., "Peptides from the variable domain of immunoglobulin G as biomarkers in chronic inflammatory demyelinating polyradiculoneuropathy", Technical Report 23-51, ESAT-STADIUS, KU Leuven (Leuven, Belgium), 2023.