Axel **Faes**

AI RESEARCHER IN HEALTHCARE · FEDERATED LEARNING · PRECISION MEDICINE · BRAIN-COMPUTER INTERFACES

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References

Liesbet M. Peeters, liesbet.peeters[at]uhasselt.be *Associate Professor (Postdoc advisor) Biomedical Data Sciences*
Marc Van Hulle, marc.vanhulle[at]kuleuven.be *Full Professor (PhD advisor) Laboratory for Neuro- and Psychophysiology*
Yves Moreau, yves.moreau[at]kuleuven.be *Full Professor (Collaborator)*

Work & Research Experience

Postdoctoral Researcher: Foundation Models & Multi-Modal Federated Learning for Precision Medicine and Liver Cancer Detection
University of Twente / Medisch Spectrum Twente
January 2026 - Current
- Developing advanced deep learning and foundation models integrating longitudinal MRI data, multi-omics profiles, and clinical variables for early detection and risk prediction of hepatocellular carcinoma (HCC).
- Building explainable AI (XAI) frameworks that link imaging features and molecular markers to clinically meaningful outcomes in precision oncology within the AI-HCC ZonMw project.

Postdoctoral Researcher: Federated Learning in Healthcare & Real-World Evidence
UHasselt
January 2024 - January 2026
- Scientific Coordinator of the Flanders AI Research Program Use Case Real World Evidence, leading multi-institutional research on privacy-preserving healthcare analytics. As Technical Machine Learning Lead of the Biomedical Data Sciences Group, developed federated learning frameworks enabling collaborative clinical research across Belgian healthcare institutions without sharing sensitive patient data.
- Research encompasses federated tensor regression for longitudinal health data, distributed learning architectures for heterogeneous clinical datasets, and translation of federated AI methods into practical healthcare applications.

Postdoctoral Researcher: Deep Learning & Tensor Regression for Sign Language Alphabet Decoding via Brain-Computer Interfaces
KU Leuven
May 2023 - January 2024
- Developed advanced machine learning methods for decoding sign language alphabet gestures from high-density intracranial brain activity (ECoG). Combined deep learning architectures with tensor regression models to capture complex spatiotemporal patterns in neural signals associated with linguistic motor control.
- Technical contributions included implementing block-term tensor decomposition for multi-dimensional neural data and exploring cross-subject generalization for robust BCI performance. The research advances both fundamental understanding of neural encoding of sign language and practical assistive communication technology. Conducted at the Laboratory for Neuro- and Psychophysiology under supervision of Prof. Marc van Hulle, extending previous doctoral research in motor decoding to linguistic applications.

Data Science Consultant
Flanders BCI
2022 - 2024
- Provided consulancy for physical experiments using Synamps RT and Neuvo EEG Systems.
- Supported the data analysis for hybrid BCI with new analytical EEG modeling techniques & signal detection- and classification algorithms.
- Infer emotion from EEG signals using machine learning techniques.
- Usage of ECoG signals from semi-invasive recording for imagined movement detection and language processing.

Research Stay Idrogenet Srl, Gloreha: Robotic Rehabilitation
Lumezzane, Italy
Dec. 2022 - Jan. 2023
- Develop custom software for the control of the Gloreha robotic rehabilitation device,
- Specifically the R-TOUCH PRO Sinfonia, a custom-built robotic exoskeleton for hand rehabilitation.

PhD Researcher in Computational Neuroscience
KU Leuven
Sep. 2018 - May 2023
- Cognitive and Molecular Neuroscience
- PhD Thesis: Finger Movement Decoding: From Source-Localisation to Tensor Regression Modelling

Web Performance Research Internship
UHasselt
Jul. 2016 - Sep. 2016
- I worked on the iMinds PRO-FLOW project @ Expertise centre for Digital Media (EDM)
- focus on the difference between the http versions (http1.1, https, http2).

Summer Research Internship Physical Computing
UHasselt
Aug. 2015 - Sep. 2015
- Interfacing between human entity, a drone and virtual objects @ Expertise centre for Digital Media (EDM).
- (C++, Optitrack motion capture, custom built drone)

Teaching & Academic Activities

Bioinformatics (3740) Coordinating lecturer, UHasselt — *Sept. 2025 - Sept. 2026*
BKO (Basic Teaching Qualification) track - Teacher Professionalization, UHasselt — *2025*
Data Science in Healthcare (4747) Lecturer (teaching team member), UHasselt — *Sept. 2025 - Dec. 2025*
Advanced Topics in Data Science (4569 & 4585) Lecturer Federted Learning (teaching team member), UHasselt — *June 2024 - Sept. 2025*
Bioinformatics (3740) Coordinating lecturer, UHasselt — *Sept. 2024 - Sept. 2025*
Guest Associate Editor Use of Big Data and Artificial Intelligence in Multiple Sclerosis, Frontiers in Immunology — *2024 - 2025*
VLAIO Evaluator for BAEKELAND SPIN OFF MANDATES, VLAIO — *2025*
Student Research Competition Judge (International Conference on Functional Programming), ICFP — *2024*
Brain-Computer Interfacing (B-KUL-H08M0A) Guest Lecturer, KU Leuven — *2022-2025*

Educational background

Flemish Sign Language course
Flemish Sign Language Centre
Sep. 2022 - May 2024
- Graduates are able to engage in day-to-day conversations with deaf and hard-of-hearing individuals.

Doctoral Programme in Biomedical Science (PhD) in Computational Neuroscience
- Cognitive and Molecular Neuroscience
- PhD Thesis: Finger Movement Decoding: From Source-Localisation to Tensor Regression Modelling

Advanced Master of Science in Engineering (M.Sc.) in Artificial Intelligence
KU Leuven
Sep. 2017 - Jul. 2019
- Engineering and Computer Science (76% - Cum Laude)
- Thesis: An Information Theoretical Approach to EEG Source-Reconstructed Connectivity (on Github)

Honours programme of the Faculty of Engineering Science (Research Track)
KU Leuven
Sep. 2016 - Oct. 2018
- Research Assistant: design of type-&-effect system for Eff based on row polymorphism
- Research Assistent: efficient compilation of algebraic effect handlers (in Eff)

Master of Science in Engineering (M.Sc.) in Computer Science (Burgerlijk Ingenieur - ir.)
KU Leuven
Sep. 2016 - Sep. 2018
- Artificial Intelligence & Theoretical Computer Science (76% - Cum Laude)
- Thesis: Algebraic Subtyping for Algebraic Effects and Handlers (on Github)

Business Summer School: United in Manchester (0739)
The University of Manchester
Jul. 2015 - Aug. 2015
- International Business

Bachelor of Science (B.Sc.) in Computer Science
UHasselt
Sep. 2013 - Jul. 2016
- Physics and General courses (79% - Magna Cum Laude)
- Thesis: Machine learning techniques for flow-based network intrusion detection systems (on Github)

Grants & (open-source) Projects

Federated Learning for Population Health Management (FL4PHM)
Co-supervisor
2025 - Current
- FWO Senior Research Project (2025)
- Project: "Federated Learning for Population Health Management"
- Role: Co-supervisor
- Team: Prof. Yves Moreau (KU Leuven), Prof. Liesbet M. Peeters (UHasselt), Prof. Bert Vaes (KU Leuven)
- Funding: Research Foundation Flanders (FWO), Belgium (applied, result expected in September 2025)
- Amount: approx. €1,150,000 (including salaries and operational costs for 4 years)

Use Case Real World Evidence - Flanders AI Research Program
Scientific Coordinator
2024 - Current
- Role: Scientific coordinator (UHasselt) and AI Researcher
- Team: approx. 10 researchers across 4 institutions

ELIXIR Belgium - Roadmap 2023-2025
Consortium Partner
2023 - 2025
- Role: Consortium partner (UHasselt), focusing on health data re-use and federated analyses
- Collaborations: KU Leuven (Yves Moreau), University of Antwerp (Geert Vandeweyer), VIB (Frederik Coppens)
- Context: ELIXIR Belgium is part of ELIXIR Europe, an ESFRI initiative funded by the European Commission and national agencies

Federated Learning Kit (FLkit)
Community Project Lead
2025 - Current
- FLkit is designed to help life scientists apply federated learning in their research. It offers guidance, techniques, and tools for working with decentralized and sensitive data, enabling privacy-preserving collaboration and deeper insights without sharing raw data.
- The project is in its early stages and open to contributors. The long-term goal is to make FLkit community-driven, sustained, and governed by researchers and practitioners who want to advance federated learning for life sciences.

Cardinal: Educational and Research platform for MSc theses in PL/compilers
Lead Developer
Jan. 2015 - Current
- Cardinal is a C++20 reimplementation of the Wren VM, designed for clarity, research, and education. It provides a small, well-documented virtual machine and runtime for exploring compilers, concurrency (fibers), and language embedding.
- The project serves as a platform for student theses and for prototyping new programming language ideas.

Open Source Python Package - Block-Term Tensor Regression (BTTR)
Lead Researcher & Developer
2022 - Current
- The open-source BTTR implementation provides researchers and practitioners with accessible, reproducible tools for tensor-based regression in neuroscience and related domains. It is actively developed and documented to support experimentation, education, and further research.

Wisconsin Breast Cancer Dataset Research Tutorial for Federated Learning
Research Tutorial Author
2025 - Current
- This repository serves as a step-by-step tutorial for running federated learning studies with the FL4E framework. Using the Wisconsin Breast Cancer dataset as an example, it guides researchers and students through the full workflow.
- Clear documentation and markdown guides explain each step, making it easier for newcomers to understand and apply federated learning in practice.

ICAL parser for KU Leuven schedules
Lead Developer
Aug. 2016 - Current
- An nodejs application to create an iCalender file for courses at KU Leuven. (>1000 active users)

Household Survival: Immersive Room-Sized Gaming Using Everyday Objects as Weapons (Unity, Optitrack Motion Capture)
Researcher
Sep. 2015 - Dec. 2015
- Developed a room-scale AR game using everyday objects as controllers (broom, fan, vacuum, mousetrap).
- Demonstrated immersive physical-virtual interactions.
- Still used in university courses as a teaching example.

Honors & Awards

Jun. 2025	**Selected for EFSA Framework Contract**, European Food Safety Authority	*Europe*
Jan. 2018	**FWO Fundamental Research Grant**, FWO	*Belgium*
Mar. 2018	**Finalist**, Cyber Security Challenge 2018	*Brussels, Belgium*
Sep. 2017	**3rd place**, ICFP 2017 Student Research Competition	*Oxford, UK*
Jul. 2016	**Bachelor Award**, in Computer Science	*UHasselt, Belgium*
May. 2016	**3rd place**, ACM CHI 2016 Student Design Competition	*San Jose, CA, USA*
Feb. 2016	**2nd place**, BeGDC (Belgian Game Development Championship)	*Brussels, Belgium*
Jan. 2016	**IELTS**, Academic Module (8.0/9.0)	*Brussels, Belgium*

Professional Development Activities

Mathematics & Natural Sciences Tutor, Freelance, Supporting high school and university students in mastering mathematics (and other natural sciences) through personalized tutoring
Sept. 2015 - 2024

Coach, DjangoGirls, Inspire women to fall in love with programming (Python, Django workshops)
Mar. 2018 - 2024

Coach, CoderDojo (UHasselt, PXL), Teach children programming (Scratch, Python, Minecraft and Lego mindstorm).
Sep. 2014 - 2025

Student Representative, KU Leuven, POC (Education Committee) of Master Computer Science Engineering, POC (Education Committee) of Advanced Master Artificial Intelligence, Member of Departmental council of Computer Science, Department board of Computer Science and Faculty council of Engineering Science
Sep. 2017 - Sep. 2018

Student Council Member, StuRa UHasselt, Member of Board of Education, Faculty Council. Board of Student Facilities, Diversity Commission, Temporary representative in VVS (Flemish Union of Students)
Mar. 2015 - Aug. 2016

Student Representative, UHasselt, Representing students interests in a Computer Science education context. Representing Computer Science education for high school students
Sep. 2013 - Jul. 2016

Publications

PAPERS IN REVIEW

[1] **Axel Faes,** "Algebraic Subtyping for algebraic effects and handlers", International Conference on Functional Programming (ICFP) 2025.

[2] **Axel Faes**, Liesbet Peeters, "Block-Term Tensor Decomposition for Signal Reconstruction", IEEE FLICS 2025 - Symposium on Federated Learning and Intelligent Computing Systems.

[3] **Axel Faes**, Liesbet Peeters, Marc Van Hulle, "Federated Transfer Learning for intracranial motor brain-computer interfaces", IEEE FLICS 2025 - Symposium on Federated Learning and Intelligent Computing Systems.

[4] **Axel Faes**, Liesbet Peeters, "Vertical Federated Learning with Block-Term Tensor Regression", Machine Learning: Science and Technology (6.8 IF).

[5] Valentina Pergher*, **Axel Faes***, Yide Li, Marc M. Van Hulle (* co-first author), "How stimulus type and task structure can affect ERP signatures", Frontiers in Psychology, section Cognition (2.6 IF).

[6] Anh Phuong Do, **Axel Faes**, et al., "Individual Reference Intervals for Clinical Event Prediction", IEEE Journal of Biomedical and Health Informatics (6.7 IF).

[7] Dongho Chun, **Axel Faes**, "Effects on clustering algorithms based on classification of Atrial Fibrillation based on ECG data", IEEE Journal of Biomedical and Health Informatics (6.7 IF).

[8] Ward Ceyssens, **Axel Faes**, "Cross Subject training for finger movement decoding with high-density ECoG", IEEE Transactions on Biomedical Engineering (4.6 IF).

[9] Dries Cornelissen, **Axel Faes**, "Block-Term Decomposition for arrhythmia detection and prediction on sinus rhythms", IEEE Transactions on Biomedical Engineering (4.6 IF).

[10] Meseret Assefa Kerga, **Axel Faes**, "Predicting Cirrhosis Patient Survival Using Machine Learning: A Data-Driven Approach", IEEE Journal of Biomedical and Health Informatics (6.7 IF).

INTERNATIONAL JOURNAL PAPERS

[11] Liesbet Peeters, **Axel Faes**, et al., "Editorial introduction 'The use of big data and AI in MS'", Frontiers in Immunology (5.7 IF).

[12] Ashkan Pirmani, Edward De Brouwer, Adam Arany, Martijn Oldenhof, Antoine Passemiers, **Axel Faes**, Tomas Kalincik, Serkan Ozakbas, Riadh Gouider, Barbara Willekens, Dana Horakova, Eva Kubala Havrdova, Francesco Patti, Alexandre Prat, Alessandra Lugaresi, Valentina Tomassini, Pierre Grammond, Elisabetta Cartechini, Izanne Roos, Cavit Boz, Raed Alroughani, Maria Pia Amato, Katherine Buzzard, Jeannette Lechner-Scott, Joana Guimaraes, Claudio Solaro, Oliver Gerlach, Aysun Soysal, Jens Kuhle, Jose Luis Sanchez-Menoyo, Daniele Spitaleri, Tunde Csepany, Bart Van Wijmeersch, Radek Ampapa, Julie Prevost, Samia J. Khoury, Vincent van Pesch, Nevin John, Davide Maimone, Bianca Weinstock-Guttman, Guy Laureys, Pamela McCombe, Yolanda Blanco, Ayse Altintas, Abdullah Al-Asmi, Justin Garber, Anneke van der Walt, Helmut Butzkueven, Koen de Gans, Csilla Rozsa, Bruce Taylor, Talal Al-Harbi, Attila Sas, Cecilia Rajda, Orla Gray, Danny Decoo, William M Carroll, Allan G Kermode, Marzena Fabis-Pedrini, Deborah Mason, Angel Perez Sempere, Mihaela Simu, Neil Shuey, Bhim Singhal, Marija Cauchi, Todd A. Hardy, Sudarshini Ramanathan, Patrice Lalive, Carmen-Adella Sirbu, Stella Hughes, Tamara Castillo Trivino, Liesbet M. Peeters, and Yves Moreau, "Personalized Federated Learning for Predicting Disability Progression in Multiple Sclerosis Using Real-World Routine Clinical Data", npj Digital Medicine (15.357 IF).

[13] **Axel Faes**, Eva Calvo Merino, Anais Van Hoylandt, Elina Keirse, Tom Theys, Marc M. Van Hulle, "Finger abduction trajectory prediction from high-density ECoG", Journal of Neural Engineering (5.4 IF).

[14] **Axel Faes**, Mariana P. Branco, Anais Van Hoylandt, Elina Keirse, Tom Theys, Nick F. Ramsey, Marc M. Van Hulle, "Decoding Sign Language Finger Movements from high-density ECoG using Graph-Optimized Block Term Tensor Regression", Journal of Neural Engineering (5.4 IF).

[15] Eva Calvo Merino, **Axel Faes**, Marc M. Van Hulle, "The role of distinct ECoG frequency features in decoding finger movement", Journal of Neural Engineering (5.4 IF).

[16] **Axel Faes**, Marc M. Van Hulle, "Finger movement and coactivation predicted from intracranial brain activity using extended Block-Term Tensor Regression", Journal of Neural Engineering (5.4 IF).

[17] **Axel Faes**, Flavio Camarrone, Marc M. Van Hulle, "Single finger trajectory prediction from intracranial brain activity using Block-Term Tensor Regression with fast and automatic component extraction", IEEE Transactions on Neural Networks and Learning Systems (14.25 IF).

[18] **Axel Faes**, Aurelie de Borman, Marc M. Van Hulle, "Source space reduction for eLORETA", Journal of Neural Engineering (5.4 IF).

[19] **Axel Faes**, Iris Vantieghem, Marc M. Van Hulle, "Neural Networks for Directed Connectivity Estimation in Source-Reconstructed EEG Data", Applied Sciences (2.9 IF).

CONFERENCE PAPERS

[20] **Axel Faes**, Liesbet Peeters, "Optimizing Federated Block-Term Tensor Regression: Strategy Comparisons and Applications", The 3rd International Conference on Foundation and Large Language Models (FLLM2025).

[21] **Axel Faes**, Ashkan Pirmani, Yves Moreau, Liesbet Peeters, "Applying Federated Learning to Block-Term Tensor Regression for Decentralised Data Analysis of Biomedical Data", IEEE Conference on Federated Learning Technologies and Applications (IEEE FLTA 2025).

[22] Qiang Sun, Eva Calvo Merino, Liuyin Yang, **Axel Faes**, Marc Van Hulle, "On the Impact of Proprioception in EEG Representations and Decoding during Human-Hand Exoskeleton Interaction", Proceedings of 2025 International Conference on Rehabilitation Robotics (ICORR) 2025.

[23] Robin Marx, Maarten Wijnants, Peter Quax, **Axel Faes**, Wim Lamotte, "Web Performance Characteristics of HTTP/2 and comparison to HTTP/1.1", International Conference on Web Information Systems and Technologies, pg 87-114.

[24] Robin Marx, Peter Quax, **Axel Faes**, Wim Lamotte, "Concatenation, embedding and sharding: Do HTTP/1 performance best practices make sense in HTTP/2?", WEBIST 2017 - Proceedings of the 13th International Conference on Web Information Systems and Technologies.

THESIS

[25] **Axel Faes**, "Finger Movement Decoding: From Source-Localisation to Tensor Regression Modelling", PhD Thesis.

[26] **Axel Faes**, "An Information Theoretical Approach to EEG Source-Reconstructed Connectivity", Advanced Master's Thesis.

[27] **Axel Faes**, "Algebraic Subtyping for Algebraic Effects and Handlers", Master's Thesis.

[28] **Axel Faes**, "Machine learning techniques for flow-based network intrusion detection systems", Bachelor's thesis.

EXTENDED ABSTRACTS

[29] Eva Calvo Merino, **Axel Faes**, Marc M. Van Hulle, "High-gamma band event detection improves stability of finger trajectories decoded from ECoG-LMP activity", International BCI Meeting 2024.

[30] Qiang Sun, **Axel Faes**, Marc M. Van Hulle, "Individual and Coordinated Finger Movements Decoding from High-Density EEG and Its Implication in Hand Exoskeleton Control", European Congress of NeuroRehabilitation 2023.

[31] Eva Calvo Merino, **Axel Faes**, Marc M. Van Hulle, "Modulation of LMPs using the gamma band increases the stability of finger trajectories decoded from ECoG", BCI (Brain-computer interfaces) - Society 2023.

[32] **Axel Faes**, Benjamin Wittevrongel, Marc M. Van Hulle, "Reconstructing single finger trajectories from intracranial brain activity", III International Conference "Volga Neuroscience Meeting 2021".

[33] **Axel Faes**, Mansoureh Fahimi Hnazaee, Marc M. Van Hulle, "Causal Graphical Modelling of Functional Connectivity from Reconstructed EEG Sources", 8th International BCI Meeting (2021).

[34] **Axel Faes**, Tom Schrijvers, "Towards a Core Language with Row-Based Effects for Optimised Compilation", International Conference on Functional Programming 2017 Student Research Competition.

[35] Kashyap Todi, Donald Degraen, Brent Berghmans, **Axel Faes**, Matthijs Kaminski, Kris Luyten, "Purpose-centric appropriation of everyday objects as game controllers.", CHI EA '16: Extended Abstracts of the SIGCHI Conference on Human Factors in Computing Systems. Student Game Competition, pp. 2744-2750.

[36] Brent Berghmans*, **Axel Faes***, Matthijs Kaminski*, Kashyap Todi (* co-first author), "Household Survival: Immersive Room-Sized Gaming Using Everyday Objects as Weapons", CHI EA '16: Extended Abstracts of the SIGCHI Conference on Human Factors in Computing Systems. Student Game Competition, pp. 168-171.

POSTERS

[37] **Axel Faes**, Tom Schrijvers, "Towards a Core Language with Row-Based Effects for Optimised Compilation", International Conference on Functional Programming 2017 Student Research Competition.

OTHER PUBLICATION

[38] Matija Pretnar, Amr Hany Shehata Saleh, **Axel Faes**, Tom Schrijvers, "Efficient compilation of algebraic effects and handlers", 2017 - CW Reports, CW708, 32 pp. Leuven, Belgium: Department of Computer Science, KU Leuven..

Supervised students, talks and other media _____

STUDENTS

[1] **Brecht Heeren**, "Federated Machine Learning for Health Data", Master of Science in Computer Science (2025-2026).

[2] **Denzell Mgbokwere**, "Optimization and Type Checking in Single-Pass Compilers - a Case Study with the Wren Programming Language", Master of Science in Computer Science (2025-2026).

[3] **Robert Rysskin**, "Redesign of Wren Bytecode - Towards More Efficient Execution and Memory Usage", Master of Science in Computer Science (2025-2026).

[4] **Anh Phuong DO**, "Individual Reference Intervals for Clinical Event Prediction", Doctoral Program in Sciences, Statistics (co-supervisor, 2024 - 2025).

[5] **Matteo Ramina**, "Estimating Household Wealth in Guyana - Remote Sensing and Convolutional Neural Network Approach", Master Statistics & Data Science (2024-2025).

[6] **Mohsen Soleimanisemsani**, "AI for time series imputation", Master Statistics & Data Science (2024-2025).

[7] **Meseret Assefa Kerga**, "Predicting Cirrhosis Patient Survival Using Machine Learning - A Data-Driven Approach", Master Statistics & Data Science (2024-2025).

[8] **Dongho Chun**, "Clustering with Cardiovascular Health Data", Master of Science in Computer Science (2024-2025).

[9] **Dries Cornelissen**, "BTTR for arrhythmia detection/prediction on sinus rhythms", Master of Science in Computer Science (2024-2025).

[10] **Ward Ceyssens**, "Cross Subject training for finger movement decoding with high-density ECoG", Master of Science in Computer Science (2024-2025).

[11] **Qiang Sun**, "Hand exoskeleton dexterity achieved by shared control with a semi-invasive brain-computer interface", Doctoral Program in Biomedical Sciences (daily supervision 2022-2023).

[12] **Eva Calvo Merino**, "Restoring finger dexterity with an exoskeleton controlled by human intracranial recordings", Doctoral Program in Biomedical Sciences (daily supervision 2022-2023).

[13] **Aurélie de Borman**, "Investigating the effect of Source Mixing on Directed Connectivity estimated between Simulated Reconstructed EEG Sources", Internship Student 2021.

[14] **Diogo Sousa Morais**, "Estimating the effectiveness of source localized EEG for BCIs", Internship Student 2021.

[15] **Guilherme de Borras Silva**, "Cluster Permutation Analysis of N-Back related EEG-ERP Data", Internship Student 2021.

[16] **Iris Vantieghem**, "Using Neural Networks to derive Directed Connectivity between Reconstructed EEG Sources", Master of Science in Artificial Intelligence (2020-2021).

[17] **Didier Quintius**, "Neural Network Approach to the Inverse Problem", Master of Science in Artificial Intelligence (2020-2021).

TALKS, PRESENTATIONS AND OTHER MEDIA

[1] **Optimizing Federated Block-Term Tensor Regression - Strategy Comparisons and Applications**, "Symposium on Federated Learning and Intelligent Computing Systems (FLICS)", 2025.

[2] **Federated Learning for Healthcare - From Brain-Computer Interfaces to Disease Prediction**, "IEEE FLTA (International Conference on Federated Learning Technologies and Applications)", 2025.

[3] **OHDSI Europe Symposium 2025**, "OHDSI Europe Symposium", 2025.

[4] **Guest Lecture "Federated Finger movement decoding - brain-computer interfacing"**, "KULeuven", 2025.

[5] **Use Case - Real-World Evidence**, "Flanders Artificial Intelligence Research Program (FAIR) Research Day", 2024.

[6] **FAIR Use Case Real World Evidence Kick-off Event**, "Flanders Artificial Intelligence Research Program (FAIR)", 2024.

[7] **Decoding finger movements from invasive recordings in human motor cortex**, "Mindseed event Leuven, NeuroTech Leuven", 2023.

[8] **Guest Lecture "Finger movement decoding - brain-computer interfacing"**, "KULeuven", 2023.

[9] **Coordinated Finger Movements Predicted from Intracranial Brain Activity**, "International Congress Humanities vs Sciences & the Knowledge Accelerating in Modern World: Parallels an Interaction,", 2022.

[10] **BCI demo - Advanced Engineering, Antwerp Expo**, "AI Flanders, Flanders Industry 4.0", 2022.

[11] **Guest Lecture "Decoding single and coordinated finger actions from intracranial brain activity"**, "KULeuven", 2022.

[12] **Finger abduction trajectory prediction from high-density ECoG**, "Leuven AI Scientific Workshop", 2022.

[13] **Decoding single and coordinated finger actions from intracranial brain activity.**, "XIV World Scientific Congress - SCIENCE FOR PEACE Modern Science, Global and Regional Theory and Practice", 2021.

[14] **Guest Lecture "Finger Movement Decoding - From Source-Localisation to Tensor Regression Modelling"**, "KULeuven", 2021.

[15] **Reconstructing single finger trajectories from intracranial brain activity**, "III International Conference "Volga Neuroscience Meeting 2021"", 2021.

[16] **BCI demo - Day of Science**, "Technopolis (canceled due to the COVID-19 situation)", 2021.

[17] **Presentation "'MINDSPELLER' Medical Research Project on Brain Computer Interfaces" and concert (with Tigran Maytesian and his Mind Speller Chamber Orchestra)**, "Cathedral of St. Michael and St. Gudula, Brussels", 2019.

[18] **Honours student Axel Faes wins bronze medal in ACM SIGPLAN,** "KU Leuven, Department of Computer Science", 2017.

[19] **Student Axel Faes wins bronze medal in the ACM SIGPLAN Student Research Competition in ICFP conference,** "KU Leuven, Department of Computer Science, DTAI", 2017.

[20] **Purpose-Centric Appropriation of Everyday Objects as Game Controllers,** "ACM SIGCHI", 2016.