Curriculum Vitae

Germain FAITY, PhD Human Movement Sciences

Last updated: October, 2026

Contact

Movement, Sport and health Sciences (M2S) Lab. – ENS Rennes Dep. 2SEP – Rennes – +33 688 907 599
germain.faity@ens-rennes.fr - https://orcid.org/0000-0002-6855-8938 - https://www.researchgate.net/profile/Germain-Faity

"Driven by a deep passion for understanding human movement and the world around us, I use my academic background in Sports Science and athletic experience to conduct interdisciplinary research. My work, integrating biomechanics, and behavioural neuroscience, aims to enrich our understanding of movement, particularly in rehabilitation. My dedication to Open Science and Open Data principles, along with my interest in programming and science communication, supports this approach and aligns with the development of digital health. As a co-founder of the 'Club des Chercheurs Verts,' I am actively engaged in promoting sustainability in research, within Sports Science and beyond."

Education and Professional Appointments

2025 – Present	**Associate Professor** *École Normale Supérieure (ENS) Rennes – Department of Sport Sciences and Physical Education (2SEP)* *Movement, Sport and Health Sciences (M2S) Lab – University of Rennes*
2024 – 2025	**Temporary Research and Teaching Associate (ATER)** *École Normale Supérieure (ENS) Rennes – Department of Sport Sciences and Physical Education (2SEP)* *Movement, Sport and Health Sciences (M2S) Lab – University of Rennes*
2024	**MCF Qualification** – Qualified as University Lecturer (Maître de Conférences) in Sports Science, Neuroscience, Rehabilitation and Physical Therapy (FR Sections 69, 74, 91)
2019 – 2023	**PhD** – Human Movement Science – Neurosciences (motor control) Thesis topic: Optimal control in reaching post-stroke *EuroMov DHM Lab. – University of Montpellier – Nîmes Univ. Hospital, Montpellier Univ. Hospital*
2018 – 2019	**Master II** – Movement Sciences and Techniques – Motor Control Research Thesis topic: A low force over weight ratio of the arm induces trunk compensations when reaching *Rank 1/10 – with 1st class honours – EuroMov Lab. – University of Montpellier*
2017 – 2018	**Master I** – Physical Conditioning & Rehabilitation – Research option Thesis topic: Quantification of learned non-use after a stroke *Rank 1/42 – 2nd class honours, upper division – EuroMov Lab. – University of Montpellier*
2014 – 2017	**Bachelor** – Sport Sciences & Training – Strength & Power option Triple speciality gymnastics, physical conditioning and aquatic activities *Rank 1/134 – 2nd class honours, upper division – University of Montpellier*
2013	**Science Baccalaureate** – Mathematics speciality *2nd class honours, upper division*

Teaching

2024 – Present — **Associate Professor (2025 – Present); Teaching Assistant (2024 – 2025)**
École Normale Supérieure (ENS) Rennes – Department of Sport Sciences and Physical Education (2SEP)

(recurring annually)

Biomechanics: *MoCap (Qualisys) – Analysis with Python*	Year 3	Tutorials	41h
Research Tools: Statistics with R	Year 3	Tutorials	25h
Research Supervision: Internship/Thesis in Life Sciences	Year 3	Tutorials	40h
From Signal to Interpretation: *Signal Processing with R*	Year 4	Lect. /Tuto	27h
Physical Activity and Virtual Reality	Year 4	Lect. /Tuto	28h
Research and intervention	Year 4	Tutorials	12h
Others: Neurosciences / AI / International Internships / …	Y. 4/5	Lect. /Tuto	16h
Total (recurring annually)			**Eq. 192h+**

2026	**Teaching (Sport Sciences & Techniques)**			
	Faculty of Sciences and Techniques of Physical and Sports Activities (STAPS) – University of Rennes 2			
	Neuroscience and Motor Control (DEUST "Métiers de la forme")	Year 1	Mixed	20h
2019 – 2023	**Thesis mentor & Scientific mentor** for Sport Sciences and Physiotherapy Students (master, bachelor)			
	EuroMov DHM Lab. – University of Montpellier			
2021 – 2022	**Teaching (Sport Sciences & Techniques)**			
	Faculty of Sciences and Techniques of Physical and Sports Activities (STAPS) – University of Montpellier			
	Practical and theoretical introduction to weightlifting	Year 1	Mixed	36h
	Human movement analysis and performance	Year 3	Tutorials	24h
	Biomechanics of human movement	Year 1	Tutorials	4h
	Total			**Eq. 64h**
2020 – 2021	**Teaching (Information Technology (IT) department; Scientific Culture service)**			
	Faculty of Sciences – University of Montpellier			
	From binary to web (*Unix / binary / compression / web)*	Year 1	Tutorials	32h
	Popular science	All		Eq. 32h
	Development of an application (R shiny) to visualise the data collected during a national participatory experiment (peluchology)			
	Total			**Eq. 64h**

Research

2026 – Present	**OPTIACTIV – Movement Actionability and Physical Activity Behaviour** *Movement, Sport and health Sciences (M2S) Lab – University of Rennes* *École Normale Supérieure (ENS) Rennes – Department of Sport Sciences and Physical Education (2SEP)*
Project under development *Principal Investigator* *40k€ secured*	Experimental research programme on how physical capacity, perceived effort, fatigue, energy expenditure and environmental constraints shape physical activity behaviour in healthy and vulnerable populations. An integrative measurement platform (wearable textile EMG, inertial sensors, 3D movement analysis, heart rate) combined with manipulations of task demand will identify biomechanical and neurophysiological markers of movement actionability.
2024 – Present	**Validity of Activity Monitors in the Study of Walking Activity** *Movement, Sport and health Sciences (M2S) Lab – University of Rennes* *École Normale Supérieure (ENS) Rennes – Department of Sport Sciences and Physical Education (2SEP)*
Completed project *(Sports Medicine – Open)* 10.1186/S40798-026-01039-4	VAMOS 1: Systematic review on the validity of accelerometry methods used in epidemiological studies assessing the relationship between physical activity sessions and health outcomes: *Data analysis and visualisation*.
1 article published (MSSE) 10.1249/MSS.0000000000004111 *+ articles in preparation*	VAMOS 2: Criterion and convergent validity of activity monitors for characterising walking bouts in daily life: *Data analysis and visualisation (comparison of several accelerometers and methods).*
1 article in preparation	VAMOS 3: Development of prediction models for EPOC-based energy expenditure estimation during walking: *Contribution to data analysis*
2018 – 2024	**Optimal control in stroke movement** *PhD, Master II (EuroMov DHM Lab. – University of Montpellier – Nîmes & Montpellier Univ. Hospitals)*
1 article published (NNR) 10.1177/15459683261445442 *+ 2 articles to be finalised*	OPTISTROKE: Effect of *i)* shoulder strength, *ii)* spatial tolerance and *iii)* height of target on trunk compensations during reaching in post-stroke patients and elderly participants.
Completed project *(JNeuroPhysiol)* 10.1152/jn.00143.2024	OPTIMOD: Modelling the role of shoulder strength in the coordination of upper limb movements in humans. International collaboration for the development of an optimal control model of the upper limb with V. Barradas (Tokyo Tech WRHI) and N. Schweighofer (Univ. of South. California).
Completed project *(Sci. Reports)* *10.1038/s41598-021-02338-4*	OPTIHEALTH: Shoulder weakness induces trunk compensations during reaching in young healthy participants.

2019 – 2024	**Recovering arm function in chronic stroke patients using combined anodal HD-tDCS and virtual reality therapy (ReArm): a study protocol for a randomised controlled trial** *PhD (EuroMov DHM Lab. – University of Montpellier – Nîmes & Montpellier Univ. Hospitals)*
1 article published (Trials) *10.1186/s13063-021-05689-5* *+ 1 article in preparation*	Participation in the ReArm clinical trial (https://clinicaltrials.gov/ct2/show/NCT04291573) : Development of digital tools for studying patient kinematics and involvement in data analysis.
Completed project (JNER) *10.1186/s12984-024-01461-3*	Descriptive analysis and correlation of clinical data, movement data, and brain signals from patients and control participants at Day 0.
Completed project (NNR) *10.1177/15459683241303691*	Development of a simple movement planning model based on optimal control theory for predicting the use of the paretic arm at home.

2019 – 2022	**Speed-accuracy tradeoff during steering task in healthy and post-stroke participants** *PhD (EuroMov DHM Lab. – University of Montpellier – Nîmes & Montpellier Univ. Hospitals)*
	Participation in the verification of the "via points" model theorised by E. Guigon (2019, 2021) to explain the velocity fluctuations of the upper limb during slow movements in humans. Participation in the development of an Index of Effective Performance (IPe) to quantify performance in a speed-accuracy tradeoff task in healthy and post-stroke participants.

2018 – 2022	**Validation of low-cost motion capture tools for stroke rehabilitation** *PhD (EuroMov DHM Lab. – University of Montpellier – Nîmes & Montpellier Univ. Hospitals)*
Completed project (Sensors) *10.3390/s23073481*	Validity and reliability of HTC Vive and HTC Vive Pro virtual reality systems for quantifying pointing angle of deviation for application in unilateral neglect after stroke.
Completed project (Sensors) *10.3390/s22072735*	Validity and reliability of Kinect v2 for quantifying upper body kinematics during seated reaching for application in upper limb rehabilitation after stroke.

2020 – 2022	**Motor control & biomechanics in the urban sport "Parkour"** *Sport and Scientific Resources and Expertise of the Parkour Federation in France (PRESS FPK)*
Completed project (Sports Med.) *10.1007/s40279-022-01642-x*	International collaboration for the writing of a literature review on the urban sport "Parkour" with D. Pagnon (Grenoble Alpes University), G. Maldonado (Institute of Human Biomechanics Georges Charpak, Paris), Y. Daout (Parkour Lausanne), Sidney Grosprêtre (University of Franche-Comté).

Dissemination

Articles in peer-reviewed journals (published or accepted)

1. Chanteau A, **Faity G.**, Mahe G., & Le Faucheur A. Accuracy in step counting is not accuracy in quantifying walking activity: a criterion validity study of wearable devices under free-living conditions. Medicine & Science in Sports & Exercise 58(8) (2026). https://doi.org/10.1249/MSS.0000000000004111
2. Chanteau A, **Faity G.**, Mahe G., Sabia S. & Le Faucheur A. Synthesis and Validity of Accelerometer Devices and Methods Used in Epidemiological Studies of Physical Activity Bout Duration and Health Outcomes: A Systematic Review. *Sports Med – Open* 12, 84 (2026). https://doi.org/10.1186/S40798-026-01039-4
3. **Faity G**., Mottet D., Froger J., & Delorme M. Neuromechanics of Nonuse and Compensation: Implications for Rehabilitation After Stroke. *Neurorehabilitation and Neural Repair*. 2026;0(0). https://doi.org/10.1177/15459683261445442
4. **Faity, G.,** Barradas, V. R., Schweighofer, N., Mottet, D. Force reserve predicts compensation in reaching movement with induced shoulder strength deficit. *J Neurophysiol 132, 470–484* (2024). https://doi.org/10.1152/jn.00143.2024
5. Muller C.O., **Faity G.**, Muthalib M., Perrey S., Dray G., Xu B., Froger J., Mottet D., Laffont I., Delorme M., Bakhti. K. Brain-movement relationship during upper-limb functional movements in chronic post-stroke patients. *J NeuroEngineering Rehabil* 21, 188 (2024). https://doi.org/10.1186/s12984-024-01461-3
6. Le Perf G., **Faity G.**, Mottet D., Muthalib M., Laffont I., Bakhti K. Beyond Arm Capacity in Chronic Stroke: Evaluating Paretic Arm Non-Use Through Arm Efficiency—A Cross-Sectional Study. *Neurorehabil Neural Repair* (2024). https://doi.org/10.1177/15459683241303691
7. **Faity G.,** Sidahmed Y., Laffont I., Froger J. Quantification and Rehabilitation of Unilateral Spatial Neglect in Immersive Virtual Reality: A Validation Study in Healthy Subjects. *Sensors*, 23, 3481 (2023). https://doi.org/10.3390/s23073481
8. **Faity G**., Mottet D. & Froger J. Validity and Reliability of Kinect v2 for Quantifying Upper Body Kinematics during Seated Reaching. *Sensors* 22, 2735 (2022). https://doi.org/10.3390/s22072735

9. Pagnon D., **Faity G**., Maldonado G., Daout Y., Grosprêtre S. What Makes Parkour Unique? A Narrative Review Across Miscellaneous Academic Fields. *Sports Med* (2022). https://doi.org/10.1007/s40279-022-01642-x
10. **Faity G.**, Mottet D., Pla S., Froger J. The reserve of joint torque determines movement coordination. *Sci Rep* 11, 23008 (2021). https://doi.org/10.1038/s41598-021-02338-4
11. Muller C.O., Muthalib M., Mottet D., Perrey S., Dray G., Delorme M., Duflos C., Froger J., Xu B., **Faity G**., Pla S., Jean P., Laffont I. & Bakhti K. Recovering arm function in chronic stroke patients using combined anodal HD-tDCS and virtual reality therapy (ReArm): a study protocol for a randomized controlled trial. *Trials* 22, 747 (2021). https://doi.org/10.1186/s13063-021-05689-5

Communications in conferences (symposium participation)

1. Caille P., Hognon L., **Faity G.** (2023, October). Taking Action on Climate Urgency: Responsibility and Decarbonization of Research in Sport Sciences for a Sustainable Future. In G. Chevance (Chair), *How Sport Sciences Can Contribute to Mitigating Climate Change and Adapting to Its Effects* [Symposium session]. 20th ACAPS international congress, Reims, France.

Communications in conferences (oral presentation)

1. **Faity G**., Mottet D., Froger J., Delorme M. (2026, September). *Neuromechanics of nonuse and trunk compensation under precision demands: implication for post-stroke rehabilitation.* 41st SOFMER national congress, Marseille, France.
2. **Faity G.**, Chanteau A., Mahe G., Le Faucheur A. (2026, July). *Validity of accelerometers and associated methods for the assessment of walking bouts in daily life*. 31st Annual Congress of the European College of Sport Science (ECSS) Lausanne, Switzerland.
3. **Faity G**., Chanteau A., Mahe G., Le Faucheur A. (2025, October). *Validity of accelerometers and analysis methods for the assessment of walking bouts in daily life.* 21st ACAPS international congress, Poitiers, France.
4. **Faity G**., Caille P., Delas Y., Hognon L. (2025, July). *Intégrer les enjeux de la transition socio-environnementale en STAPS.* Enseigner les Transitions Écologiques et Sociales dans le Supérieur (ETES), Lyon, France.
5. **Faity G**., Mottet D., Froger J. (2023, October). *Motor Compensations in Stroke Patients: Learned Non-Use or Optimal Control?* 20th ACAPS international congress, Reims, France.
6. **Faity G.**, Muller C.O., Muthalib M., Perrey S., Dray G., Xu B., Delorme M., Mottet D., Laffont I., Froger J., Bakhti K. (2023, October). *Brain-movement relationship in upper-limb functional tasks for chronic post-stroke patients.* 20th ACAPS international congress, Reims, France.
7. **Faity G**., Mottet D., Froger J. (2023, October). *Motor compensations in stroke patients: Learned non-use or optimal control?* 38th SOFMER national congress, Le Havre, France.
8. Muller C.O., **Faity G.**, Muthalib M., Perrey S., Dray G., Xu B., Delorme M., Mottet D., Laffont I., Froger J., Bakhti K. (2023, October). *Brain-movement relationship in upper-limb functional tasks for chronic post-stroke patients.* 38th SOFMER national congress, Le Havre, France.
9. Sidahmed Y., **Faity G.**, Fazilleau S., Laffont I., Froger J. (2022, December). *Quantification and Rehabilitation of Unilateral Spatial Neglect in Immersive Virtual Reality: A Validation Study in Healthy Subjects*. 37th SOFMER national congress, Rennes, France.
10. **Faity G**., Mottet D., Bakhti K., Pla S., Laffont I. (2019, October). *Muscle weakness is not solely responsible for the movement characteristics of the paretic upper limb*. 18th ACAPS international congress, Paris, France. https://hal.archives-ouvertes.fr/hal-03631483
11. **Faity G**., Mottet D., Bakhti K., Laffont I. (2019, October). *Antigravity Muscle Weakness May Induce Proximal Arm Nonuse*. 34th SOFMER national congress, Bordeaux, France. https://hal.archives-ouvertes.fr/hal-03631490
12. **Faity G**., Mottet D., Bakhti K., Laffont I. (2019, October). *Kinect as a reliable assessment tool to automatize individualized rehabilitation*. 34th SOFMER national congress, Bordeaux, France. https://hal.archives-ouvertes.fr/hal-03631498

Communications in conferences (poster presentation)

1. Le Faucheur A., Chanteau A., Maitrallin M., **Faity G.**, Mahe G., Emily M., Rouvière L. (2026, June). *Development of prediction models for EPOC-based energy expenditure estimation during walking*. 10th international conference on ambulatory monitoring of physical activity and movement (ICAMPAM), Knoxville, Tennessee, USA.
2. Le Perf G., **Faity G.**, Mottet D., Muthalib M., Bakhti K. (2025, April). *Capacity vs. Efficiency: Which Choice for the Use of the Paretic Arm in Activities of Daily Living?* 10th Francophone Physiotherapy Days, Montpellier, France.
3. **Faity G**., Mottet D., Bakhti K., Laffont I., Froger J. (2022, December). *Consequences of target height on Proximal Arm Non Use (PANU) when reaching after a stroke*. 37th SOFMER national congress, Rennes, France.
4. **Faity G**., Mottet D., Bakhti K., Laffont I., Froger J. (2022, July). *Shoulder weakness induces trunk compensation after a stroke*. 16th ISPRM world congress, Lisbon, Portugal. https://hal.archives-ouvertes.fr/hal-03778164

5. Fauviaux T., **Faity G.**, Mottet D. (2021, October). *Information throughput in healthy individuals who are comparable in age and gender with persons with stroke*. 19th ACAPS international congress, Montpellier, France. hal-03834663
6. Fauviaux T., Muller C., **Faity G.**, Bakhti K., Laffont I., Froger J., Mottet D. (2021, October). *Can a circular steering task quantify sensorimotor integration in persons with stroke?* 36th SOFMER national congress, Lille, France. hal-03834500

Contribution to the scientific community

Webinars, Workshops & Training Sessions

1. **Faity, G.** (2026, December). *GGIR : prise en main de l'outil pour analyser des données d'activité physique recueillies par accéléromètre.* GDR CNRS Sports et Activité Physique – GT Actidata. Invited onsite workshop (FR, Paris, France).
2. **Faity, G.** (2026, December). *De la mesure à l'harmonisation : évaluer l'activité physique par accélérométrie en conditions de vie réelle.* GDR CNRS Sports et Activité Physique – GT Actidata. Invited onsite conference (FR, Paris, France).
3. **Faity, G.** (2026, June). *Quantifier l'activité physique par accélérométrie : quelles méthodes pour quels usages ?* GDR CNRS Sports et Activité Physique – GT Actidata. Invited online webinar (FR).
4. **Faity, G.** (2025, December). *GGIR Workshop – Accelerometer Data Analysis in R for Assessing Movement Behavior*. DIGISPORT Winter School, Rennes. International workshop (EN).

Peer-review activity

1. Ad hoc reviewer for international peer-reviewed journals in biomechanics, rehabilitation, wearable sensing and movement analysis.

Artificial Intelligence, Open Science, Data management & Open data

1. 2026 – Present. Coordination of the 2SEP working group on a generative AI charter for student training (ENS Rennes), pilot department for the ENS-wide charter.
2. **Faity, G**., Martin J.-F., Dehne Garcia A., Lamotte F. (2020). *Guide pratique open data. En route vers la Science Ouverte : Gérer les données de sa recherche*. https://doi.org/10.5281/zenodo.7152984
3. Contributor to the Data Management Plan (DMP) section of the local ethics committee of the Euromov DHM lab (2021).
4. Open sharing of all code and data produced, uploaded to Open Science Framework (OSF). https://osf.io/e8qwh/

Science Communication

1. Public science talk on the urban sport 'Parkour' at the alternative sports festival SPORTOPIA (22 June 2024, UFR STAPS Besançon, France). 'Le parkour démystifié: techniques de réception'.
2. Development of an interactive web application (R Shiny) for visualising data collected during a national participatory science experiment (Peluchologie, Univ. Montpellier). https://cs.umontpellier.fr/project/peluchologie/

Institutional and Community Service

1. Member of the ENS Rennes CDSN 2026 selection committee for PhD grant applications.
2. Contribution to the update of the ENS Rennes – 2SEP Department website (*ongoing*).
3. Development of an interactive mapping application to visualise the laboratory's scientific networks and explore researcher collaborations. https://germainfaity.shinyapps.io/M2S_bibliometrics/
4. Coordination of the end-of-year dinner of the EuroMov DHM laboratory (2019).

Ecological Engagement

1. Founding member of the 'Projet Transition ECO-STAPS' with the support of ANESTAPS, C3D and ACAPS, with the aim of integrating ecological transition issues into French STAPS education at the national level. Interim report available online: https://osf.io/vq2xr/files/wscfx
2. Member of the Sustainable Development and Social Responsibility (DDRS) Committee at ENS Rennes (2025 – Present).
3. Co-representative of ENS Rennes within the Ecological and Social Transition in Higher Education (TES) Working Group at the University of Rennes (2025 – Present).
4. Co-founder of the 'Club des Chercheurs Verts' at the Euromov DHM laboratory (2022-2023) with P. Caille and L. Hognon. Collective actions conducted:
   - Secured funding of €17k from the University of Montpellier through a call for projects to conduct a climate-focused introduction for first-year Sport Science students at UFR STAPS in Montpellier for the 2023-2024 academic year.
   - Organisation of an "Awareness and Training Day on Environmental Issues for Staff of the UFR STAPS at the University of Montpellier" (April 2023).
   - Carbon footprint assessment of the EuroMov DHM laboratory. Design of a reproducible, open-data methodology including yearly reduction targets and transition planning using a participatory approach.

- Engaged in ecological transition (literature reviews, scientific monitoring, participation in various seminars and conferences, e.g. GdR Labos 1point5, The Shift Project think tank, etc.).

Grants

2026 *(OPTIACTIV)*	Scientific Start-up Grant for Research Equipment – Rennes Métropole *Total direct support: approx. 40k €*
2020 *(OPTISTROKE)*	Call for tenders (Nîmes Univ. Hospital) – https://clinicaltrials.gov/ct2/show/NCT04747587 *Total direct support: approx. 37k €* *Score 17/20, 20 being the highest possible score*
2019	Doctoral funding from the French doctoral school 463 – Human Movement Science *Total direct support: approx. 100k €* *Rank 1/6*

Hard skills

Movement analysis	*3D with markers (Qualisys, Vicon, Zebris), 3D markerless (Kinect), 2D (graphic tablet)* *Accelerometers* *Force sensors / Force plates*
Muscular Activity	*Surface electromyography (sEMG)*
Programming languages	*MATLAB, SciLab* *R, R Markdown, R Shiny* *Python* *Quarto website*
Languages	*French (native), English (scientific)*
Others	*Experience in data management and open science* *Interest in science communication* *Engaged in the ecological transition*

Non-profit involvement and other professional experience

2015 – 2021	**Coach, physical trainer and supervisor in the urban sport "Parkour"** Federal certificates in parkour (level 1, 2), Speaker for the level 1 Creation of a parkour coaching course to help young associations grow (FIMP) Organisation of a national sport event (Weekend FPK 2019, Montpellier) *Association Montpellier Parkour (AMP) and Fédération de Parkour (FPK) (volunteer)*
2017 – 2019	**Coach and physical trainer in weightlifting, powerlifting, strength training, fitness** Federal certificates in weightlifting (level 1, 2), powerlifting (level 1, 2), strength training and fitness (level 1, 2), Kettlebell (level 1). *Association FORCE STAPS Montpellier (trainee) – SUAPS Montpellier (employee)*
2013 – 2017	**Lifeguard and First aid worker** *Watersports Center Nautilis (16) (employee) – Association Les Sauveteurs de la Charente (volunteer)*

References

Pr. Denis Mottet	PhD supervisor and Master's thesis advisor. denis.mottet@umontpellier.fr
Dr. Jérôme Froger	PhD co-supervisor. jerome.froger@umontpellier.fr
Pr. Stéphane Perrey & Pr. Jacky Montmain	Directors of the EuroMov lab during my PhD, with whom I have collaborated on the implementation of the ecological transition within the lab. stephane.perrey@umontpellier.fr ; jacky.montmain@mines-ales.fr
Dr. Alexis Le Faucheur	Deputy director of the 2SEP Department – ENS Rennes, with whom I collaborate on the VAMOS research project and teaching activities. alexis.le-faucheur@ens-rennes.fr