# Olivier White, Ir, PhD, HDR

Associate Professor
Engineer (Ir.) in Computer Science
PhD in Computational Motor Control/Neuroscience
« Habilitation à Diriger les Recherches »
Scientific Consultant

**Université Bourgogne Europe**

Born on August 5th 1977

INSERM - U1093 Cognition, Action, and Sensorimotor Plasticity
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## Research Interests Keywords

Motor control and learning, computational modelling, optimal control, behavioural neuroscience, dexterous manipulation, upper limb movements, bimanual control, internal models, motor imagery, human movement variability, eye movements, perception, cognitive psychology, altered gravity, robotics, fractal analysis, fMRI, virtual reality, haptics, peer review.

## Education

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| Qualif | French Professorship Qualification for the Neuroscience Section | 2020 |
| HDR | Habilitation ("*From basic motor control to applications*"), Université de Bourgogne, **France** | 12/2016 |
| PhD | Neuroscience and applied mathematics, Louvain School of Engineering, **Belgium** | 2007 |
| MAA | Applied Mathematics, biological systems modelling, Louvain School of Engineering, **Belgium** | 2006 |
| MSc | Master in Computing Engineering, Louvain School of Engineering, **Belgium** (1st class, *summa cum laude*) | 2000 |
| BSc | Engineering, Louvain School of Engineering, **Belgium** | 1997 |

## Professional and Research Activities

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| 2026 – | **Section Editor-in-Chief**<br>For the "Behavioural Biology" section of MDPI Biology (Open Access Journal, Q1) |
| 2022 – 2024 | **Visiting Lecturer**<br>KU Leuven, Leuven, BE |
| 2019 – | **Associate Professor at Engineering Schools** (CNAM – Industry 4.0 & Cognition, ESEO – Biomedical Research Ethics, ESTP – Algorithms, Programming, Signal Processing & Modeling, CODA – AI and Data Science) |
| 2020 – | **Visiting Lecturer**<br>International Space University, Strasbourg, FR and King's College London, UK |
| 2017 – | **Honorary Senior Lecturer**<br>School of Health Sciences, University of East Anglia, UK |
| 2015 – | **Associate Professor, ENSAM Engineering School**<br>Cognition & Motor Control, Chalon-sur-Saône, FR |
| 2015 | **Research Associate**<br>Medical University of Graz, AT |
| 2012 – 2016 | **Scientific Director of the Cognition and Movement Pole**<br>uB-Filiale/Welience, FR |
| 2011 | **Visiting Research Scientist**<br>University College London, UK |
| 2010 – | **Associate Professor**<br>Unit INSERM 1093 Cognition, Action, and Sensorimotor Plasticity, Université de Bourgogne, FR |
| 2010 – | **Scientific Consultant**<br>Science: Coordination of International Peer Review Panels, scientific advice<br>Industry & Operations: Route optimisation for last-mile delivery (cVRP, OR-Tools, OSRM — JP Home, France, 2025–2026); automated quality-control pipeline for research proposal review (multi-model local LLM panel, structured output, auditable workflow — ESF, 2025–present). |

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| 2009 – 2010 | **Science Officer**<br>Space Sciences Unit, European Science Foundation, FR |
| 2007 – 2009 | **Post-Doctoral Research Fellow**<br>Bangor University (Host: J. Diedrichsen), UK |
| 2002 – 2007 | **Research Assistant (PhD Student)**<br>Louvain School of Engineering and Institute of Neuroscience, Université catholique de Louvain, BE<br>"*The role of gravity in dexterous manipulation: a driving force rather than a perturbation*"<br>Advisors: Profs P. Lefèvre (Ir) and J.L. Thonnard (MD). |
| 2000 – 2002 | **Research Engineer**<br>Physical Rehabilitation and Neurophysiology Laboratory, Université catholique de Louvain, BE |

## Research Summary

My research interests, in the broad field of neuroscience, are centred on **motor control and learning** using various techniques and from different theoretical perspectives, therefore fostering many multidisciplinary and international collaborations. My main research themes are structured along three axes: motor control and learning, graviception (representation of gravity in the brain and body), and variability and noise in motor control.

To understand how the brain controls actions as diverse as reaching movements, dexterous manipulation or locomotion, the central nervous system must be challenged. Using 3D virtual reality, haptic devices and even changes in gravity, I demonstrate the flexibility of our brain to adapt behaviour in many environments, including those never experienced. These investigations raise basic questions such as which sensory information drives learning, how we generalise and consolidate motor skills, why do we choose one specific motor strategy among an infinite repertoire, how does inherent variability in the perception-action chain benefit control, how do we cope with stress and other mental states? These questions, how a learning system generalises beyond the conditions it was trained in and when it fails, are also central to machine learning and AI safety.

I address these questions using standard techniques (motion tracking systems, force measurements, accelerometry, electromyography, pupillometry, and fMRI) but also parabolic flights, human centrifuges and modelling approaches (optimal control, Bayesian inference, stochastic resonance and fractal analyses).

My goal is to build a thriving research laboratory that uses multiple approaches, including behavioural, neuroimaging and mathematical methods, to better understand how the brain plans and executes movements, with a view to developing applications. I am pursuing this endeavour through collaborations and by actively involving MSc and PhD students.

## Research Grants (only ≥10,000 €)

| Year | Details | Award |
|---|---|---|
| 2026 – | Projet Région AAP SmartCav **ENVERGURE** (co-PI)<br>*Development of AI-driven biomarkers of sleepiness when driving* | 180,000 € |
| 2025 | **MRSEI (**Montage de Réseaux Scientifiques Européens ou Internationaux)<br>*ANR grant to prepare an ERC Synergy* | 36,000 € |
| 2025 | **European Space Agency / United Arab Emirates Space Agency (co-PI)**<br>*69th CNES Parabolic flight Campaign (Sept 2025)* | Access to ZeroG |
| 2024 | **Dry Immersion / BedRest – co-Investigator (VIVALDI III)** | Access to Bedrest facility |
| 2024 | **French – Slovenian Collaboration Grant** | 10,000 € |
| 2021 – | **PhD Fellowship**<br>*« Adaptation to gravity: a model of cognition-action interaction"* | 100,000 € |
| 2021 – | **Dry Immersion – co-Investigator**<br>*The pathophysiology, risk, and clinical presentation of Venous Thromboembolisms during dry immersion: motor control aspects* | Access to Dry Immersion facility |
| 2021 – | **BedRest – co-Investigator**<br>*The pathophysiology, risk, and clinical presentation of Venous Thromboembolisms during head-down tilt bed rest: effects of supplemental daily centrifugal artificial gravity with or without exercise in normoxia or hypoxia in relation to body morphology factors* | Access to Bedrest facility |
| 2019 – 2022 | **ISITE – Principal Investigator**<br>PhD Fellowship. *"Chaos and optimal variability in voluntary human movements"* | 100,000 € |
| 2019 – 2022 | **ISITE – co-Investigator**<br>*Gravity force integration into the motor command of arm movements (GravitArm)* | 150,000 € |
| 2018 – 2019 | **Centre National d'Etudes Spatiales (CNES)**<br>Parabolic flight Campaign 142 | Access to ZeroG aircraft |
| 2018 – 2021 | **Centre National d'Etudes Spatiales (CNES) and Université de Bourgogne**<br>PhD Fellowship, "*Improving motor performances in altered gravity*" | 100,000 € |

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| 2015 – 2016 | **Chaire d'excellence Programme**<br>Motor control and learning | 30,000 € |
| 2014 – 2016 | **Centre National d'Etudes Spatiales (CNES)**<br>Coherent multimodal sensory information allow switching between gravitoinertial contexts | 70,000 € |
| 2014 – 2015 | **European Space Agency**<br>Delta-G Topical Team | 20,000 € |
| 2013 | **Université de Bourgogne**<br>Neural correlate of gravity (fMRI-compatible devices) | 17,000 € |
| 2012 – 2014 | **Fonds européen de développement régional (EU) and Région Bourgogne**<br>Neural correlate of gravity (research engineer to set up fMRI platform) | 65,000 € |
| 2010 | **Fonds européen de développement régional (EU)**<br>Haptic system to quantify motor control (Phantom Premium 3.0, Sensable) | 70,000 € |
| 2010 – 2014 | **Chaire d'excellence Programme**<br>Motor control and learning | 75,000 € |

## Academic Prizes, Awards, Honours

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| September 2022 | Promoted "Hors Classe" |
| September 2021 | Prime d'Excellence en Recherche rang A (4 years) |
| October 2019 | ACAPS Best poster presentation award (presented by my PhD student, M. Barbiero) |
| September 2017 | Prime d'Excellence en Recherche rang A (4 years) |
| September 2015 | Chaire d'Excellence INSERM renewed (2 years) |
| September 2010 | Chaire d'Excellence INSERM (5 years) |
| April 2008 | Neural Control of Movement Scholarship Program Award |
| June 2005 | ESA International Society of Gravitational Physiology best presentation award |

## Engineering and Methodological skills

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| **Experimental development for the Space environment** | Design and implementation of experimental platforms for real-time data acquisition in altered gravity (centrifuge/parabolic flights/ISS). Requires mechanical construction of frames, conception of electrical circuits, programming fault-tolerant software, synchronization of systems. |
| **Parabolic flights** | Managed 7 ESA parabolic flight campaigns (2002-2005) and one CNES parabolic flight campaign (2019). |
| **Human centrifuge** | Managed two centrifuge campaigns (Sweden 2013; France 2016). |
| **International Space Station** | Scientific contribution to the development of a proposal in response to the 2004 International Life Science Research Announcement selected for flight in the International Space Station (outstanding review score, 92 %). Experiment flown on the ISS (2018). |
| **fMRI** | Set up access to an MRI scanner (3T) dedicated to research. Developed fMRI research with MRI-compatible devices (screen, stim box). |
| **Virtual reality** | Development of experiments in virtual environments. Involves real-time programming (C++/OpenGL), controlling one or two robotic devices (Phantom 3.0), force transducers and stereoscopic 3D displays. |
| **Mathematics** | Biomechanical modelling and numerical methods. More specific methods: Optimal feedback control, Bayesian statistics, fractal analysis, artificial neural networks, classification, deep learning. |
| **Programming** | Matlab, Octave, C/C++, Python and other computer languages. Windows and Linux OS. |
| **Research methods** | Eye movement recording (Chronos, Tobii), Motion capture system, EMG, psychophysics, accelerometry, force measurements, haptics. |

## International Collaborations



I have experience in working in a multidisciplinary research setting and I have established several national and international collaborations. Most of them are still ongoing and resulted in publications.
I have led and participated in several successful team projects, including collaborations with N. Goswami (Medical University of Graz, **Austria** ~~[Ref 31, 32, 34, 40, 44, 51, 53, 55, 58]~~[Ref 30, 31, 33, 39, 43, 50, 52, 54, 57]); A. Karniel and I. Nisky (Ben Gurion University of the Negev; **Israel,** ~~[Ref 29]~~[Ref 28]); JL. Thonnard, P. Lefèvre, F. Crèvecoeur and E. Olivier (Institute of Neuroscience and Center for applied mathematics, Université catholique de Louvain, **Belgium,** ~~[Ref 1–6, 9, 13, 16, 19, 22, 28, 35]~~[Ref 1–5, 7, 9, 13, 16, 18, 21, 27, 34]); F. Dierick (Rehazenter, **Luxembourg,** ~~[Ref 14, 26, 33, 36, 38, 39, 41, 46, 47, 51, 52, 54, 57]~~[Ref 14, 25, 32, 35, 37, 38, 40, 45, 46, 50, 51, 53, 56]); N. Boulanger and F. Buisseret (Physics of the Universe, Fields and Gravitation Unit, University of Mons, **Belgium,** ~~[Ref 26, 33, 36, 38, 39, 41, 46, 47, 51, 52, 54, 57]~~[Ref 25, 32, 35, 37, 38, 40, 45, 46, 50, 51, 53, 56]); Bill Paloski (NASA Research Programme, **USA,** ~~[Ref 22]~~[Ref 21]); L. Fadiga (Istituto Italiano di Tecnologia, **Italy,** ~~[Ref 21]~~[Ref 20]); M. Davare (Department of Movement Sciences, KU Leuven, **Belgium,** ~~[Ref 19]~~[Ref 18]); J. Diedrichsen (Control and Computational Neuroscience, Brain and Mind Institute, University of Western Ontario, **Canada,** ~~[Ref 8, 10–13, 18]~~[Ref 8, 10–13, 17]); A. Wing (School of Psychology, University of Birmingham, **UK, [Ref 4, 13, 16]**); RM Bracewell (School of Psychology, Bangor University, **UK, [Ref 10, 13, 16]**); A. Smith (Physiology department, University of Montreal, **Canada, [Ref 4, 9]**); G. Blohm (Centre for Neuroscience Studies, Queens University, **Canada,** ~~[Ref 4, 42, 43, 45]~~[Ref 4, 41, 42, 44]); J. Babič (Neuromechanics and Biorobotics Lab, "Jožef Stefan" Institute, **Slovenia,** ~~[Ref 32, 42, 43, 45, 51]~~[Ref 31, 41, 42, 44, 50]); C. Trenado (Leibniz Research Centre for Working Environment and Human Factors, TU Dortmund, **Germany,** ~~[Ref 32]~~[Ref 31]); L. Bringoux (Movement Science Institute, Aix Marseille University, **France,** ~~[Ref 35]~~[Ref 34]); J. Hermsdörfer (Human movement science, TU Munich, **Germany,** ~~[Ref 28]~~[Ref 27]); E. Ferrè (Department of Psychology, Birkbeck University of London, **UK**); D. Nozaki (The University of Tokyo, **Japan,** ~~[Ref 42, 43, 45]~~[Ref 41, 42, 44]**);** N. Stergiou (University of Nebraska, **USA**), V. Gritsenko (Rockefeller Neuroscience Institute, West Virginia University, **USA**), F. Pagnini (Università Cattolica del Sacro Cuore, Italy, ~~[Ref 48, 49, 53]~~[Ref 47, 48, 52]), and A. Gutoreva (Head of AI Lab, Kazakh-British Technical University, **Kazakhstan**).

## Invited Talks

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| 2025 | Keynote lecture | Association des Neurologues Libéraux de Langue Française |
| 2024 | Lecturer | International Space University, FR |
| 2023 | Department Seminar | Royal Holloway University of London, UK |
| 2020 | Lecturer | International Space University, FR |
| 2019 | Lecturer | ESA/ELGRA Summer School, ESA Academy, BE |
| 2018 | Keynote lecture | Warsaw International Medical Congress, PL |
| 2018 | Department Seminar | University of Rome, IT |
| 2018 | Keynote lecture | Brain week, Nice, FR |
| 2016 | Department Seminar | Université catholique de Louvain. Brussels, BE |
| 2016 | Department Seminar | University of East Anglia. Norwich, UK |
| 2016 | Department Seminar | KULeuven, BE |

## Meeting Organisation

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| 2022 | **Ethics of digital technology in Health.** (with Regional Health Agency and Ethics Committees, FR)<br>Exchanges around ethics and new digital technologies applied to health |
| 2021 | **ESA Life Science Roadmap** (100 participants)<br>Neuroscience sub-group lead for space research priorities and countermeasures roadmap. |
| 2019 | **Feedback-assisted adaptation in altered gravity** (6 participants, CNES Parabolic Flight, Bordeaux, FR) |
| 2019 | **Fractals and complexity** (5 participants, Mons, BE)<br>Brainstorming on a PhD proposal (funded) to understand the role of noise in the motor system |
| 2013 | **ESA Delta G Topical Team** (15 participants, Linköping, SE)<br>Two experiments with the large radius human centrifuge |
| 2012 | **ESA Delta G Topical Team** (15 participants, Dijon, FR)<br>Brainstorming on human motor adaptation in variable hyper-g |
| 2012 | **THESEUS Roadmap Launch Event** (70 participants, ESF, CNES, Paris, FR)<br>Presentation of the main findings (showstoppers to traveling to Mars) |

2009 **THESEUS Expert Group Workshop** (100 participants, ESF, Tunisia)
Refining findings for the 5 Life Science Expert groups
2009 **THESEUS Opening Workshop** (150 participants, ESF, Sasbachwalden, DE)
Brainstorming per expert group
2001 Dexterous **ESA Topical Team** (30 participants, UCL, Brussels, BE)
Dynamics of Prehension in Microgravity and its Application to Robotics and Prosthetics

## Outreach and Science Communication

2023 – 2024 Participation in **Pint of Science festival**, public outreach in neuroscience and gravity.
2022 – **RITM project** – high-school outreach to strengthen the bridge between secondary and higher education, promoting STEM careers (with a focus on encouraging girls).

## Memberships

Federation of European Neuroscience Societies (**FENS**), European Low Gravity Research Association (**ELGRA**), Association des Chercheurs en Activités Physiques et Sportives (**ACAPS**), Neural Control of Movement (**NCM**), Society for Neuroscience (**SfN**), Committee on Space Research (**COSPAR**).

## Administrative responsibilities

2025 – **HR Excellence in Research (HRS4R), Université Bourgogne Europe**
Member of Workgroup 2 (Evaluation, Recruitment and Career Progression) contributing to the EU HR Excellence in Research labelling process. Conducts gap analysis against the European Charter principles, co-designs the institutional survey, and proposes action plans to improve transparency, fairness and breadth of researcher evaluation and recruitment practices across the university.

2025 – **Official Referent for AI in the Sports Science Department**
Train staff and students on best practices and updates in the AI field.

2025 – **Member of the University "AI Pole"**
Define best practices for using AI tools in teaching and education. Active involvement in AI and education projects (CAIRE initiative, training-the-trainers for AI literacy).

2024 – **Member of the UFR STAPS bureau**
Make strategic decisions about resources (including human) to be allocated to activities.

2023 – **Coordinator of Fight Kids Cancer Review panels**
Implements the selection process of clinical trial and translational research proposals in the domains of paediatric cancers for 7 EU foundations (5 M€) with the European Science Foundation.

2022 **Co-PI of the "Ethics of digital technology in Health" workshop**
Provides recommendation for future thoughts about development of digital technologies applied to Health.

2020 – 2022 **Coordinator of the ESA Neuroscience working group**
Provides recommendation for future research in space neuroscience (7 expert members).

2020 – 2021 **Member of « Conseil d'Orientation de l'Espace de Réflexion Ethique Régional »** (Université de Bourgogne).
Provides advice on ethical problems. Led to the creation of a 24/7 counselling centre providing support for COVID-19-related issues.

2019 – 2021 **Working group on English lectures** (Université de Bourgogne).
Member of a working group to identify potential of existing or new lectures in English in all topics in the framework of the construction of a European University (FORTHEM). (6 meetings per year and a 2-day workshop).

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| 2019 – 2020 | Practical organization of **Parabolic flight** campaigns.<br>Prepare, develop and implement parabolic flight campaigns (incl ethics approval) in collaboration with international partners. Involves several meetings per year in Bordeaux (Novespace) and Paris (CNES) and participation to the campaign (2 weeks in Bordeaux). |
| 2019 – | Member of the **IT committee**.<br>Decide the strategy related to IT in the Department (support material to teaching, infrastructure etc). |
| 2018 – | **International scientific coordinator** (mandated by our lab director. C. Papaxanthis).<br>Monitoring international coordination actions to identify funding and other opportunities for the laboratory. |
| 2018 – | **Coordinator of the computer science lectures** in BSc 1.<br>Responsible for the practical organization and follow up of lectures in basic computer science for 450 BSc 1 students: definition of pedagogic objectives, coordination of pedagogic interventions, organization of students and lecturers schedules and organization of the exams. |
| 2016 – | Statutory member of the **Clinical Research Ethics Committee** (CPP Est 1; biostatistics expert and rapporteur).<br>Meetings twice a month to decide whether ethics approval is granted to ca 10 applications in the wide medical domain (from Phase I clinical studies to observational studies). |
| 2015 – | **Coordination of projects for space** between INSERM, ESA and CNES.<br>Meet with representatives of INSERM, ESA and CNES to structure future concerted responses to research announcements (4 meetings per year). |
| 2014 – 2019 | Representative of the Health and Learning sectors to the **University Platforms Committee**.<br>Meeting 3 times a year to decide on the strategic orientations of platforms at the university level. |
| 2011 – | Regular participation to **selection committees** of associate professors and professors (sports sciences, psychology, engineering). |
| 2010 – | **Coordinator of peer review missions with the European Science Foundation**.<br>Coordination of the procedures that allow selection of scientific projects (research, chairs, PhD fellowships, post doc fellowships, research units) in a very large national and international context. Involves finding experts and panel members, defining evaluation criteria, checking conflicts of interest, conducting panel meetings (3 times a year, gathering ca 100 panel members) and quality checks of the assessments. S**o far, I contributed to the evaluation of more than 10,000 research projects for many partners with the allocation of 10–15 M€ annually to international research teams across biomedical and fundamental sciences**: Université de Lille, University of Naples, ESA, Louvain Bionics, Université du Luxembourg, University of Torino, Compagnia di San Paolo, AXA Research Fund, Fight Kids Cancer, FCT, Université de Bordeaux, Université de Lorraine, Ghent University, FWO, Grand Est Region, Science Offensive action, University of Piemonte Orientale, University of Antwerp, Université d'Aix Marseille, EuroPlanet, University of Bologna, Shota Rustaveli National Science Foundation, Graphene flagship. |
| 2010 – 2020 | Member of the Life Science CNES group. |
| 2009 – 2012 | Rapporteur of the Integrated Systems Physiology Cluster of THESEUS (Neurophysiology Expert Group). |

## Editorships

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| Topic Editor | Biology MDPI Special Issue "Impact of Psychology on Fine Motor Control" |
| Topic Editor | Biology MDPI Special Issue "Variability in Human Motor Control" |
| Topic Editor | Frontiers in Physiology (Research Topic: "Gravitational Physiology, Aging and Medicine") |
| Associate Editor | Frontiers in Neurology |

Associate Editor Frontiers in Human Neuroscience
Member of the editorial board of *Clinical Interventions in Aging* (IF 3) since 02/2021, M*DPI Biology* (IF 5.2) since 2023, International Journal of Aerospace Psychology (IF 1.5) since 09/2026. Section Editor-in-Chief, "Behavioural Biology" section, MDPI Biology, since 2026.

## Journal Reviewing

Current Biology, Cortex, Experimental Brain Research, Frontiers in Physiology, Frontiers in Human Neuroscience, PlosONE, Neuroscience Letters, Scientific Reports, Nature Publishing Group Microgravity, Journal of Neuroscience, Journal of Neurophysiology, Neuroscience, Neuropsychologia, Journal of Neuroscience Methods, Human Movement Science, IEEE Transactions on haptics, MDPI Biology, PNAS, Nature Communications.

## Grant Reviewing

National Research Council (NRC, CA), Fonds Wetenschappelijk Onderzoek (FWO, BE), The Fund for Scientific Research (FNRS, BE), German-Israël Foundation (DE, IL), European Science Foundation (ESF, FR), AXA philanthropic funds, Shota Rustaveli National Science Foundation (Georgia), European Space Agency (ESA) and various national funds.

## PhD Student Supervision

I have supervised more than 50 Master theses (M1/M2) in sports sciences, psychology, engineering and medicine. Member of PhD juries at Aix-Marseille Université (FR), Université catholique de Louvain (BE), KULeuven (BE), Medical University of Graz (AT), University of Munich (DE), Universiti Teknologi PETRONAS (Malaysia). Supervision of 5 BSc students and 5 MSc students per year. MSc work often results in scientific publications.

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| Ludovic Le Moullec: | Own funding (6-year part time)<br>Start date: 1 September 2024<br>Project: Interaction between stress and gravity |

*Le Moullec L, White O. Grip force adaptation is disrupted in descending hypergravity phases. In prep*

*White O, Le Moullec L, Pagnini F. Still Unresolved: Six decades of Persistent Gaps in Human Neurophysiology and Psychology for Space Exploration. In prep*

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| Denis Barbusse: | Region/French fellowship<br>Start date: 1 September 2021 Defence date: 13 January 2025<br>Project: *Adaptation to gravity: a model of cognition-action interaction* |

D. Barbusse will pursue his research career with a post doc at the Albert Einstein College of Medicine, New York (Host: Dr. Pierfilippo De Sanctis) to work on Alzheimer disease using EEG, Motion Capture, and fMRI.

*Barbusse D, Amoura S, Gaveau J, White O. (2026). Feedback-driven adaptation of gravity-related sensorimotor control to an upside-down posture. J. Neurophysiol*

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| Victor Dehouck: | Region/French fellowship<br>Start date: 1 September 2019 Defence date: 22 November 2023<br>Project: *Chaos and optimal variability in voluntary human movements* |

*Boulanger N, Buisseret F, Dehouck V, Dierick F, White O. Diffusion in Phase Space as a Tool to Assess Variability of Vertical Centre-of-Mass Motion during Long-Range Walking. Physics 5 (1), 168-178*

*Buisseret F, Dehouck V, Boulanger N, Henry G, Piccinin F, White O, Dierick F. (2022) Adiabatic Invariant of Center-of-Mass Motion during Walking as a Dynamical Stability Constraint on Stride Interval Variability and Predictability. Biology 11 (9), 1334*

*Boulanger N, Buisseret F, Dehouck V, Dierick F, White O. Motor strategies and adiabatic invariants: The case of rhythmic motion in parabolic flights. Phys Rev E. 2021. 10.1103/PhysRevE.104.024403.*

*Boulanger N, Buisseret F, Dehouck V, Dierick F, White O. Adiabatic invariants drive rhythmic human motion in variable gravity. Phys Rev E, 2020. doi:10.1103/PhysRevE.102.062403.*

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| Marie Barbiero: | Region/CNES fellowship |
| | Start date: 1 September 2018 Defence date: 7 March 2022 |
| | Project: *Improving motor performance in altered gravity* |

*Rannaud Monany D, Barbiero M, Lebon F, Babič J, Blohm G, Nozaki D, White O. (2022). Motor imagery helps updating internal models during microgravity exposure. Journal of Neurophysiology.*

*Kunavar T, Jamšek M, Barbiero M, Blohm G, Nozaki D, Papaxanthis C, Babič J, White O. (2021). Effects of Local Gravity Compensation on Motor Control During Altered Environmental Gravity. Frontiers in Neural Circuits, 15, 750267.*

*Rousseau C, Barbiero M, Pozzo T, Papaxanthis C, White O. Actual and Imagined Movements Reveal a Dual Role of the Insular Cortex for Motor Control. Cereb Cortex, 2020. doi:10.1093/cercor/bhaa376.*

*White O*, Barbiero M*, Goswami N. The effects of varying gravito-inertial stressors on grip strength and hemodynamic responses in men and women. Eur J Appl Physiol. (*equal contribution). 2019.*

*White O, Karniel A, Papaxanthis C, Barbiero M, Nisky I. Switching in feedforward control of grip force during tool-mediated interaction with elastic force fields. Frontiers in Neurorobotics. 18. 2018.*

*Barbiero M, Rousseau C, Papaxanthis C, White O. Coherent multimodal sensory information allows switching between gravitoinertial contexts. Frontiers in Physiology. 8:290. 2017.*

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| Célia Rousseau: | Region/EU fellowship |
| | Start date: 1 September 2012 Defence date: 1 September 2016 |
| | Project: *The role of gravity in motor learning: fMRI approach and modeling* |

Dr. Célia Rousseau pursued her career with a post doc in Dr. Eran Dayan's neuroinformatics lab (NC, USA) to work on clinical fMRI in Parkinson patients. Sadly, Célia passed away during her postdoc.

*Rousseau C, Barbiero M, Pozzo T, Papaxanthis C, White O. Actual and Imagined Movements Reveal a Dual Role of the Insular Cortex for Motor Control. Cereb Cortex, 2020. doi:10.1093/cercor/bhaa376.*

*Barbiero M, Rousseau C, Papaxanthis C, White O. Coherent multimodal sensory information allows switching between gravitoinertial contexts. Frontiers in Physiology. 8:290. 2017.*

*Rousseau C, Papaxanthis C, Gaveau J, Pozzo T, White O. Initial information prior to movement onset influences kinematics of upward arm pointing movements. J Neurophysiol. 2016.*

*Rousseau C, Fautrelle L, Papaxanthis C, Fadiga L, Pozzo T, White O. Direction-dependent activation of the insular cortex during vertical and horizontal hand movements. Neuroscience. 325:10–19. 2016.*

## Teaching Experience

I have developed a broad portfolio of teaching experience gained during research positions in different contexts (sports science, engineering schools, psychology faculty). I also mix different fields in my teaching approach (e.g.: engineering, neuroscience, AI). This includes face to face coaching, small-group supervisions (10), medium (40) and large lecture groups (200+) as well as the supervision of research projects at undergraduate and postgraduate levels. Teaching load ca 350h/year. Specifically:

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| 2026 | **CODA – AI and Data Science** |
| | Engineering school in computer science |
| 2024 | **ERASMUS Mundus SpaceMed** |
| | International MSc. Computational neuroscience |
| 2024 | **National Master BioSpace** |

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| | MSc. Motor control and gravity |
| 2023 – | **Artificial Intelligence, Big Data and Industry 4.0** |
| | MSc, new Engineering diploma (Le CNAM – Conservatoire National des Arts et Métiers) |
| 2022 – 2024 | **Data norms and Ethics** |
| | MSc, Engineering school (ESEO), France |
| 2020 – | **Analyses of large data sets by programming** (python, matlab) |
| | All public – short training |
| 2019 – | **Algorithmics, numerical programming, signal processing, and deep learning** (Python) |
| | MSc, Engineering school (ESTP), France |
| 2018 – 2019 | **Descriptive Statistics** |
| | BSc, BSc Sports Sciences, University of Athens, Greece |
| 2018 – | **Space Physiology and Health** |
| | MSc, MSc in Life Science in Space, King's College London, UK |
| 2018 – | **Course Coordinator for Computer Science** |
| | BSc, BSc in Sports Sciences, Université de Bourgogne, France |
| 2018 – | **Mathematics** |
| | BSc, BSc in Sports Sciences, Université de Bourgogne, France |
| 2017 – | **Biomechanics** |
| | BSc, BSc in Sports Sciences, Université de Bourgogne, France |
| 2017 – 2019 | **English** |
| | BSc, BSc in Sports Sciences, Université de Bourgogne, France |
| 2016 – | **Advanced Statistics (Bayesian)** |
| | MSc, MSc in Sports Sciences, Université de Bourgogne, France |
| 2016 – | **Matlab Programming and Data Analysis** |
| | MSc, MSc in Sports Sciences, Université de Bourgogne, France |
| 2015 – | **Research Methodology and Scientific Communication** |
| | MSc, MSc in Sports Sciences, Université de Bourgogne, France |
| 2014 – | Basic **Computer Science (Office suite)** |
| | BSc, BSc in Sports Sciences, Université de Bourgogne, France |
| 2014 – 2015 | **Artificial Neural Networks and Matlab** |
| | MSc, MSc in Psychology, Université de Lille 3, France |
| 2012 – | **Computational Motor Control and Neuroscience** |
| | MSc, MSc in Engineering, Paris Tech, France |
| 2010 – | **Motor Control and Neuroscience** |
| | BSc, BSc in Sports Sciences, Université de Bourgogne, France |
| | MSc, MSc in Cognitive Psychology, Université de Bourgogne, France |
| | MSc, MSc in Psychology, Université de Lille 3, France |
| 2007 – 2009 | **Matlab class** and hands on linked to fMRI lectures. |
| | MSc in Psychology, Bangor University, UK |

## Public Engagement

I have disseminated my research to the broader public through participation at public events and interaction with the media. Specifically:

2025 **Educational Advisor** at an independent middle school in Dijon (France)
2024 Digital mentor to **support future challenges in programming/data analysis** in AI for care (AI4Care Datathon)
2022 Promoting interest in science and mathematics among secondary school pupils (RITM Grant).
2020 Founding member of a **counselling center related to COVID-19**-related issues.
2019 Invited lecturer at the **"ESA Summer School"**, Redu, Belgium.
Demonstration of the importance of multidisciplinarity in space research to a well-trained European MSc student audience.
2018 **Invited talk at the "Semaine du Cerveau"**, Nice, France.
The illustration to a large audience of how the brain uses gravity to perform actions.
2017 **What is a researcher's life like?** Several high schools in France.
Description of a typical researcher trajectory to high school pupils. The goal is to open their minds on this exciting career and provide concrete facts and figures.
2017 **Demonstrator of experiments during open house**
Invite external people to test engaging experiments using advanced technologies.

## Hobbies and Interests

| | |
|---|---|
| **Sports** | Cycled across France (**bicycle and tandem**) and **across the USA** (6000 km from Washington DC to San Francisco CA in 47 days). Wrote and published the novel: "*L'Amérique à 12 vitesses*". Runner. |
| **Miscellaneous** | Space Exploration, mineralogy, chemistry, fundamental physics. |
| **Social** | President of the "Association des Parents d'élèves" at the local school (2 years, 280 families), math coach, first aid worker. |

**Publications** (*most recent first –up to date list and PDF are on http://olivierwhite.weebly.com*)

*Upcoming*

Goswami N, Blaber A, Valenti G, Evans J, Bailey D, Vernikos J, Van Loon J, **White O**, Convertino V. Gravity: Neurophysiological Effects. Invited Chapter (Elsevier).

Le Moullec L, **White O**. Grip force adaptation is disrupted in descending hypergravity phases.

**White O**, Le Moullec L, Pagnini F. Still Unresolved: Six decades of Persistent Gaps in Human Neurophysiology and Psychology for Space Exploration.

**White O**, Davare M, Olivier E, Andres M. The ventral premotor cortex encodes grasp- and hand-dependent movement parameters in humans.

**White O**, Dierick F, Boulanger N, Fourès T, Buisseret F. Fractal analysis and altered gravity shed light on optimal movement variability.

Coelho L, Buisseret F, Boulanger N, Dierick F, Assadi H, Cointre L, de Oliveira L, **White O**. Fractal Signatures of Stride Dynamics Predict Faster Marathon Performance.

**White O**, Le Moullec L, Pagnini F. Grip Force Under Pressure: How Psychological Factors and Mental States Shape Object Manipulation.

*Under review*

Cointre L, Buisseret F, Boulanger N, Dierick F, Coelho L, **White O**. Force Constraints Reveal Adaptive Fractal Dynamics of Grip Motor Control.

Gritsenko V, Kunavar T, Jamšek M, **White O**, Babič J. Muscle co-activation and gravity compensation shape reaching movements in altered gravity.

Buisseret F, Dierick F, Benhabbari H, Delchambre P, Boulanger N, White O, Stergiou N. Gait as an optimal process: Phase-space and fractal dynamics reveal optimality criteria.

*Published*

~~60.~~59. **White O**. Visual and auditory information shed light on savings mechanism. Eur. J. Neurosci.

~~59.~~58. Barbusse D, Amoura S, Gaveau J, **White O**. (2026). Feedback-driven adaptation of gravity-related sensorimotor control to an upside-down posture. J. Neurophysiol

~~58.~~57. Stead TE, Cvirn G, De Boever P, Bergauer A, Green DA, **White O**, Arron HE, Blaber AP, Goswami N. (2026). Blood coagulability changes in females exposed to dry immersion: examining a mechanism for the development of venous thromboembolism in microgravity. Acta Astronautica, 240, 99–105.

~~57.~~56. **White O**, Buisseret F, Dierick F, Boulanger N. (2025). From Brain to Motion: Harnessing Higher-Derivative Mechanics for Neural Control. Front. Appl. Math. Stat.

~~56.~~55. Michel C, Amoura S, **White O**. (2025). Visuo-motor rotation influences representational acuity but not space representation. Front. Hum. Neurosci.

5~~5~~4. Goswami N, Blaber A, Valenti G, Evans J, Bailey D, Vernikos J, Van Loon J, **White O**, Convertino V. (2025). Gravity: Physiological Effects, Implementation and Applications. **Physiological Reviews. IF=28**

~~54.~~53. Buisseret F, Sansò A, Sen, E, Boulanger N, **White O**, Dierick F. (2025). Stress on the Stride: How Treadmill Walking Reveals Gait Variability Differences in Children, Young Adults, and Seniors? Chaos, Solitons and Fractals

~~53.~~52. Bailey D, Blottner D, Gunga H, Schneider S, Wotring V, Baatout S, Durante M, Olde Engberink R, Goswami N, Heer M, Liphardt AM, Monici M, Pagnini F, Stern C, Stukenborg J, Weber T, Vico L, **White O**, van Ombergen A, Choukér A. (2025). Integrative focus on the space exposome-integrome: physiological challenges and practical limits of countermeasures beyond low Earth orbit. npj Microgravity

~~52.~~51. Boulanger N, Buisseret F, Dierick F, **White O**. (2024). The Two-Thirds Power Law Derived from a Higher-Derivative Action. Physics, 6(4), 1251-1263

~~51.~~50. **White O**, Dehouck V, Boulanger N, Dierick F, Babič J, Goswami N, Buisseret F. (2024). Resonance tuning of rhythmic movements is disrupted at short time scales: a centrifuge study. iScience 27 (5)

~~50.~~49. Ruffino C, Gaveau J, **White O**, Hilt P, Papaxanthis C. (2023). Time of day and sleep effects on motor acquisition and consolidation. npj Science of Learning 8 (1), 30

~~49.~~48. Stahn AC, Bucher D, zu Eulenburg P, Denise P, Smith N, Pagnini F, **White O**. (2023) Paving the way to better understand the effects of prolonged spaceflight on operational performance and its neural bases. npj Microgravity. 9, 59

~~48.~~47. Pagnini F, Manzey D, Rosnet E, Ferravante D, **White O**, Smith N. (2023) Human behavior and performance in deep space exploration: next challenges and research gaps. npj Microgravity 9 (1), 27

~~47.~~46. Boulanger N, Buisseret F, Dehouck V, Dierick F, **White O**. (2023). Diffusion in Phase Space as a Tool to Assess Variability of Vertical Centre-of-Mass Motion during Long-Range Walking. Physics 5 (1), 168-178

~~46.~~45. Buisseret F, Dehouck V, Boulanger N, Henry G, Piccinin F, **White O**, Dierick F. (2022) Adiabatic Invariant of Center-of-Mass Motion during Walking as a Dynamical Stability Constraint on Stride Interval Variability and Predictability. Biology 11 (9), 1334

~~45.~~44. Rannaud Monany D, Barbiero M, Lebon F, Babič J, Blohm G, Nozaki D, **White O**. (2022). Motor imagery helps updating internal models during microgravity exposure. Journal of Neurophysiology

~~44.~~43. Brix B, **White O**, Ure C, Apich G, Simon P, Roessler A, Goswami N. (2021). Hemodynamic Responses in Lower Limb Lymphedema Patients Undergoing Physical Therapy. Biology, 10(7), 642

~~43.~~42. Jamšek M, Kunavar T, Blohm G, Nozaki D, Papaxanthis C, **White O**, Babič J. (2021). Effects of Simulated Microgravity and Hypergravity Conditions on Arm Movements in Normogravity. Frontiers in Neural Circuits, 15, 750176

~~42.~~41. Kunavar T, Jamšek M, Barbiero M, Blohm G, Nozaki D, Papaxanthis C, Babič J, **White O**. (2021). Effects of Local Gravity Compensation on Motor Control During Altered Environmental Gravity. Frontiers in Neural Circuits, 15, 750267

~~41.~~40. Boulanger N, Buisseret F, Dehouck V, Dierick F, **White O**. (2021). Motor strategies and adiabatic invariants: The case of rhythmic motion in parabolic flights. Phys Rev E. 10.1103/PhysRevE.104.024403

~~40.~~39. Goswami N, **White O**, Blaber A, Evans J, Van Loon J, Clement G. (2021). Human Physiology Adaptation to Altered Gravity Environments. Acta Astronautica. 189:216-221

~~39.~~38. Dierick F, Brismée JM, **White O**, Bouché O, Périchon C, Filoni N, Barvaux V, Buisseret F. (2021). Fine adaptive control of precision grip without maximum pinch strength changes after median nerve mobilization. Sci Reports. 11

~~38.~~37. Dierick F, Vandevoorde C, Chantraine F, **White O**, Buisseret F. (2021). Benefits of nonlinear analysis indices of walking stride interval in the evaluation of neurodegenerative diseases. Hum Mov Sci. doi:10.1016/j.humov.2020.102741.

~~37.~~36. Rousseau C, Barbiero M, Pozzo T, Papaxanthis C, **White O**. (2020). Actual and Imagined Movements Reveal a Dual Role of the Insular Cortex for Motor Control. Cereb Cortex. doi:10.1093/cercor/bhaa376

~~36.~~35. Boulanger N, Buisseret F, Dehouck V, Dierick F, **White O**. (2020). Adiabatic invariants drive rhythmic human motion in variable gravity. Phys Rev E. doi:10.1103/PhysRevE.102.062403

~~35.~~34. **White O**, Gaveau J, Bringoux L, Crevecoeur F. (2020). The gravitational imprint on sensorimotor planning and control. J Neurophysiol. Jul 1;124(1):4-19. doi: 10.1152/jn.00381.2019

~~34.~~33. Goswami N, Van Loon JJWA, Roessler A, Blaber AP, **White O**. (2019). Editorial: Gravitational Physiology, Aging and Medicine. Front. Physiol. 10: 1–3

~~33.~~32. Boulanger N, Buisseret F, Dierick F, **White O**. (2019). Higher-derivative harmonic oscillators: stability of classical dynamics and adiabatic invariants. Eur. Phys. J. C. 2019. 79: 60

~~32.~~31. **White O**, Babič J, Trenado C, Johannsen L, Goswami N. (2019). The promise of stochastic resonance in falls prevention. Front. Physiol. https://doi.org/10.3389/fphys.2018.01865

~~31.~~30. **White O***, Barbiero M*, Goswami N. (2019). The effects of varying gravito-inertial stressors on grip strength and hemodynamic responses in men and women. Eur J Appl Physiol. (*equal contribution)

~~30.~~29. Michel C, Bonnetain L, Amoura S, **White O**. (2018). Force field adaptation does not alter space representation. Sci Reports. 8

~~29.~~28. **White O**, Karniel A, Papaxanthis C, Barbiero M, Nisky I. (2018). Switching in feedforward control of grip force during tool-mediated interaction with elastic force fields. Frontiers in Neurorobotics. 18

~~28.~~27. **White O**, Thonnard JL, Lefèvre P Hermsdörfer J. (2018). Grip Force Adjustments Reflect Prediction of Dynamic Consequences in Varying Gravitoinertial Fields. Frontiers in Physiology. 9:131

~~27.~~26. Barbiero M, Rousseau C, Papaxanthis C, **White O**. (2017). Coherent multimodal sensory information allows switching between gravitoinertial contexts. Frontiers in Physiology. 8:290

~~26.~~25. Dierick F, Nivard A-L, **White O**, Buisseret F. (2017). Changing Complexity and Autocorrelations of Long Time Series Stride Interval With Walking Direction and Vestibular Stimulation. PlosONE

~~25.~~24. Aubert A, Larina I, Momken I, Blanc S, **White O**, Prisk GK, Linnarsson D. (2016). Towards human exploration of space: the THESEUS review series on cardiovascular, respiratory, and renal research priorities. npj Microgravity

~~24.~~23. Rousseau C, Papaxanthis C, Gaveau J, Pozzo T, **White O**. (2016). Initial information prior to movement onset influences kinematics of upward arm pointing movements. J Neurophysiol

~~23.~~22. **White O** & French R. Pupil diameter may reflect motor control and learning. (2016). J Mot. Behaviour. 2895:1-9

~~22.~~21. **White O**, Clément G, Fortrat JO, Pavy-LeTraon A, Thonnard JL, Blanc S, Wuyts F, Paloski W. (2016). Towards human exploration of space: the THESEUS review series on neurophysiology research priorities. npj Microgravity

~~21.~~20. Rousseau C, Fautrelle L, Papaxanthis C, Fadiga L, Pozzo T, **White O**. (2016). Direction-dependent activation of the insular cortex during vertical and horizontal hand movements. Neuroscience. 325:10–19

~~20.~~19. **White O**. (2015). The brain adjusts grip forces differently according to gravity and inertia: a parabolic flight experiment. Front. Integr. Neurosci. 9:7

~~19.~~18. **White O**, Davare M, Andres M, Olivier E. (2013). The Role of Left Supplementary Motor Area in Grip Force Scaling. PLoS ONE 8(12): e83812. doi:10.1371/journal.pone.0083812

~~18.~~17. **White O** & Diedrichsen J. (2013). Flexible switching of feedback control mechanisms allows for learning of different task dynamics. PLoS ONE. 8(2): e54771. doi:10.1371/journal.pone.0054771

16. **White O**, Lefèvre P, Wing AM, Bracewell RM, Thonnard JL. (2012) Active Collisions in Altered Gravity Reveal Eye-hand Coordination Strategies. PLoS ONE. 7(9): e44291. doi:10.1371/journal.pone.0044291

15. Papaxanthis C, Paizis C, Pozzo T, **White O**, Stucchi N. (2012). Mental Movement Simulation is Optimally Tuned to the Kinematic laws Characterizing Actions: Experimental Evidences from the 2/3 power law. PLoS ONE. 7(11):e51191. doi: 10.1371/journal.pone.0051191

14. Dierick F, Laine G, Van Oystaeyen B, **White O**. (2012). Effect of volleyball training background and warm-up exercise on passive kinematics and musculo-articular impedance of the knee joint. Sports Medicine & Doping Studies. S6:001.doi:10.4172/2161-0673.S6-001

13. **White O**, Thonnard JL, Wing A, Bracewell M, Diedrichsen J, Lefevre P. (2011). Grip force regulates hand impedance to optimize object stability in high impact loads. Neuroscience. 189C:269-276

12. **White O** & Diedrichsen J. (2010). Responsibility Assignment in Redundant Systems. Curr Biol. 20(14):1290-1295

11. Diedrichsen J, **White O**, Newmann D, Lally N. (2010). Use-dependent and error-based learning of motor behaviors. J Neurosci. 30 (15):5159-66

10. **White O**, Dowling N, Bracewell M, Diedrichsen J. (2008). Rapid grip force adjustments interact between the hands independently of the manipulated object. J Neurophysiol. 100:2738-2745

9. **White O**, Bleyenheuft Y, Ronsse R, Smith A, Thonnard JL, Lefevre P. (2008). Altered gravity highlights Central Pattern Generators mechanisms. J Neurophysiol. 100:2819-2824. **[Faculty of 1000]**

8. **White O**, Diedrichsen J. (2008). Motor Control: from joints to objects and back. Curr Biol. 18 (12):R532-3

7. **White O**, Penta M, Thonnard JL. (2008). A new device to measure the three-dimensional forces and torques in precision grip tasks. J Medical Eng & Tech¶
¶
~~7.~~ 6. **White O**. (2007). The role of gravity in dexterous manipulation: a driving force rather than a perturbation. PhD Thesis, Louvain-la-Neuve, Belgium

~~6.~~ 5. Ronsse R, **White O**, Lefevre P. (2007). Computation of gaze orientation under unrestrained head movements. J Neurosci Methods. 159, 158-169

~~5. White O, Penta M, Thonnard JL. (2008). A new device to measure the three-dimensional forces and torques in precision grip tasks. J Medical Eng & Tech¶~~
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4. Thonnard JL, Smith A, Wing A, McIntyre J, Lefèvre P, **White O**, Augurelle AS, Langlais JS, Witney A, Blohm G, Penta M, Elmann-Larsen B. (2005). Eye-Hand Coordination : Dexterous object manipulation in new gravity fields. ESA Publications. 1281, 148-163

3. **White O**, Lefevre P, Thonnard JL. (2005). Eye-hand coordination in controlled collisions in altered gravity. Comput Methods Biomech Biomed Engin Supp 1 : 281

2. **White O**, McIntyre J, Augurelle AS, Thonnard JL. (2005). Do novel gravitational environments alter the grip-force/load-force coupling at the fingertips? Exp Brain Res. 163(3), 324-34

1. Augurelle AS, Penta M, **White O**, Thonnard JL. (2003). The effect of a change in gravity on the dynamics of prehension. Exp Brain Res. 148, 533-540

## Book chapters

Goswami N., **White O.**, van Loon J.J.W.A., Roessler A., Blaber A., eds. (2020). Gravitational Physiology, Aging and Medicine. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88963-273-2.

Système Neurosensoriel et Fonctions Sensorimotrices en Microgravité. **White O**, Bringoux L, Luyat M, McIntyre J, Tagliabue M, Clément G. In « L'Homme dans l'Espace ». Edited by CNES. (2020)

## Conference Presentations

Oral Presentation (competitively selected in open call)

**White O,** Le Moullec L, Pagnini F. Still Unresolved: Six decades of Persistent Gaps in Human Neurophysiology and Psychology for Space Exploration. (2026). COSPAR Scientific Meeting. Florence, IT.

Le Moullec L, Ponguenewende J. G., Boullier A, **White O**. Mathematical training eliminates intuitive physics biases that motor expertise cannot. (2026). 3rd European Motor Control Conference. Brussels, BE.

Le Moullec L, **White O**. Brain vs. Gravity: Exploring the Limits of Intuition and Physics in Human Motor Control. (2024). DLR Human Physiology Workshop. Cologne, Germany.

Barbusse D, **White O**, Gaveau J. (2024). Optimal motor control and reaction time: are we always thrifty when we don't have the time? Forum de Jeunes Chercheurs, Dijon, France.

Barbusse D, Mathieu R, **White O**, Gaveau J. (2023). Kinematic optimization of the gravity forcefield: on the curvature of horizontal movements? Congrès Annuel de l'Association des Chercheurs en Activité Physique et Sportive, Reims, France.

**White O**. (2017). When perturbations improve motor control: Hints from stochastic resonance. NeuroRehabilitation and neural repair. Maastricht, NL.

**White O**, Lefèvre P, Van Loon J, Thonnard JL, Hermsdörfer J. (2014). Anticipatory grip force between 1 and 3g. The 40th COSPAR Scientific Meeting. Moscow, RU.

**White O**. (2013). The grip force controller differentiates the inertial and gravitational components of the load. Human In Space symposium. Cologne, DE.

**White O** and Blanc Stéphane. (2012). THESEUS: Cluster 1: Integrated Systems Physiology. THESEUS Launch conference, CNES, Paris, France.

**White O** & Diedrichsen J. (2008 and 2009). Responsibility assignments in redundant systems. Workshop, Université catholique de Louvain, Belgium.
Midlands and Wales Motor Meeting, University of Cambridge, UK.

**White O**, Bleyenheuft Y, Ronsse R, Smith A, Lefèvre P, Thonnard JL. (2007). Altered gravity highlights Central Pattern Generators mechanisms. 4th European Congress "Medicine in Space and in Extreme Environments", Berlin, Germany. And Midlands and Wales Motor Meeting, School of Psychology, Bangor University, UK.

**White O**. (2007). Predictive grip for high impact loads in altered gravity. Progress Report for the ISS experiment. ESA (ESTEC), Noordwijk, NL.

**White O**, Wing A, Lefevre P, Thonnard JL. (2006). Eye-hand coordination in predictive grip for high impact loads in altered gravity fields. 9th ESA Workshop on Advanced Space Technologies for Robotics and Automation. Noordwijk, NL.

Poster Presentation (selected)

Boulanger N, Buisseret F, Burny J, Dierick F, Estievenart W, Teregulov A, **White O**. Smoothness and performance in cervical head movements: validation of a higher-derivative mechanical model using the DidRen VR test. 3rd European Motor Control Conference. Brussels, BE. 2026.

Le Moullec L, **White O**. Gravité et Modèles Internes: les mathématiques du contrôle moteur. Société Belge des Professeurs de Mathématique d'expression française, « Mathématiques Spatiales ». Liège, BE. 2026

McKendall MJ, Kunavar T, Jamsek M, **White O**, Babič J, Gritsenko V. Dynamic modeling of neuromuscular interactions for motor performance across gravitational environments. Society for Neuroscience meeting. San Diego. 2025.

Barbusse D, Amoura S, Gaveau J, **White O**. Feedback-driven adaptation of gravity-related sensorimotor control to an upside-down posture. Neural Control of Movement, Dublin, Ireland, 2023 and Forum de Jeunes Chercheurs, Dijon, France, 2022.

Barbusse D, Gaveau J, **White, O**. Kinematic analysis of vertical arm movements: effects of body orientation and movement direction. 31st Annual Meeting of Neural Control of Movement, Dublin, 2022.

Rannaud Monany D, Barbiero M, Lebon F, Babič J, Blohm G, Nozaki D, **White O**. Better live your dreams than dream your life: impact of microgravity on internal models. FENS 2020 (virtual).

Laprévotte J, **White O**, Saltarelli S, Quercia P, Gaveau J, Papaxanthis C (2019) Dyslexie : Evaluation motrice de l'hypothèse cérébelleuse. Poster. 10ème Colloque Régional des troubles des Apprentissages et du Développement. Dijon (France).

Barbiero M, Goswami N, **White O**. (2019) The Effects of Varying Gravito-inertial Stressors on Grip Strength and Hemodynamic Responses Across Gender. Human Spaceflight, Toulouse, FR.

Barbiero M, Maintenant A, **White O** (2019) How does initial information affect performance in reaching? Congrès de l'Association des Chercheurs en Activités Physiques et Sportives (ACAPS), Paris (France).

**White O**, Abdeslam S, Dierick F, Boulanger N, Buisseret F. (2018). Arm movements in altered gravity violate the two-thirds power law: insights from fractal analyses. FENS 2018. Berlin, DE.

Boulanger N, Buisseret F, Dierick F, **White O**. (2018). Adiabatic invariants for biological rhythmic movements in altered gravity. Soc Belge Phys. BE.

Orban de Xivry JJ, Barbiero M, **White O**. (2017). Transfer of motor adaptation between visual and auditory feedback conditions. Neural Control of Movement, Dublin, Ireland.
Van Loon J, Wuyts F, Bravenboer N, **White O** et al. (2015). Moon as a stepping stone for Mars: centrifuges on Moon! Moon 2020-2030. Noordwijk, NL.

Rousseau C, Fautrelle L, Papaxanthis C, Pozzo T, **White O**. (2015). The insular cortex integrates proprioceptive information sensitive to gravity. ESMRMB. Edinburgh, UK.

**White O**, Lefèvre P, Thonnard JL, Hermsdörfer J. (2014). Anticipatory grip force between 1 and 3g. Neural Control of Movement. Amsterdam, NL.

**White O**, French R. (2013). Effect of motor imagery on pupil dilation. Neural Control of Movement. Puerto Rico.

**White O**, Papaxanthis C, Pozzo T. (2011 & 2012). When a mechanical continuum requires a discrete control.
Society for Neuroscience 41st annual meeting. Washington DC, USA and 4th France Israël Binational Neuroscience Conference, Aussois, FR.

**White O**, Pozzo T, Paizis C, Papaxanthis C. (2011). Motor learning by mental training and observation. Society for Neuroscience 41st annual meeting. Washington DC, USA.

Wing A, **White O**, Lefevre P, Thonnard JL. (2011). Predictive grip for high impact loads in altered gravity fields. UK Space Agency. Harwell, Oxford, UK.

**White O**. (2010). La manipulation d'objets réels et virtuels: aspects théoriques, cliniques et technologiques. Université de Bourgogne, Dijon, FR.

Diedrichsen J & **White O**. (2009). Use-dependent and error-based learning of new motor behaviors. Society for Neuroscience 39th annual meeting. Chicago, IL, USA.

**White O**, Dowling N, Bracewell M, Diedrichsen J. (2008). Rapid grip force adjustments interact between the hands during object manipulation. Neural Control of Movement. Naples FL, USA. **NCM Scholarship Program Award.**

Le Seac'h A, **White O**, Lefèvre P, Thonnard JL, McIntyre J. (2007). Internal representations of vertical for the control of sensorimotor tasks. Society for Neuroscience 37th annual meeting. San Diego, CA, USA.

**White O**, Wing A, Lefevre P, Thonnard JL. (2006). Predictive grip for high impact loads in altered gravity fields. Society for Neuroscience 36th annual meeting. Atlanta GA, USA.

**White O**, Lefevre P, Ykman N, Wing A, Thonnard JL. (2005). Controlled collisions in altered gravitational fields. 26th ESA International Society of Gravitational Physiology (ISGP). Cologne, DE. **Young Researchers Best Presentation Award.**

**White O**, Lefevre P, Ykman N, Wing A, Thonnard JL. (2005). Controlled collisions in altered gravitational fields. Neural Control of Movement. Key Biscayne FL, USA.

**White O**, Blohm G, Thonnard JL, Lefevre P. (2004). Accurate visual feedback enhances learning of manipulation in altered gravity. Society for Neuroscience 34th annual meeting. San Diego CA, USA.