

Clint Hansen

Operations Project Lead | Privatdozent (PD Dr.) | Movement Science | Data Analytics in Sports Science & Rehabilitation | Gait & Coordination Analysis | IMU & Wearables, Kiel University

Untere Strasse 3, 24159 Kiel, Germany · +49 176 21546263

c.hansen@neurologie.uni-kiel.de · Hansen.clint@gmail.com

Born 20 February 1984 in Flensburg · Married, two children · Languages: German (native), English & French (fluent)

PROFILE

Movement scientist specialising in wearable-sensor-based gait and mobility analysis across neurological, geriatric and sports populations. Author/co-author of 150+ peer-reviewed journal articles and international research leader, with work-package contributions to major EU IMI2 consortia (MOBILISE-D, IDEA-FAST) and co-applicant on a JPND grant. Fifteen years of research experience across Europe, the Middle East and Asia, bridging academic rigour, clinical relevance and applied industry partnerships.

PROFESSIONAL EXPERIENCE

07/2017 – present	Deputy Head, Neurogeriatrics Working Group — University Hospital Schleswig-Holstein (UKSH), Kiel Conceptual planning and implementation of research projects; leading a team of doctoral students and postdocs; training early-career scientists and contributing to the university teaching programme.
03/2016 – 06/2017	Project Manager, Cruciate Ligament Research — ASPETAR Orthopaedic and Sports Medicine Hospital, Doha, Qatar Planned and developed the assessment centre; built and led the team; evaluated project performance and ensured clinical relevance.
08/2015 – 03/2016	Research Associate — Nanyang Technological University, Singapore Validation of a novel cable-driven planar manipulator; human–robot interaction; signal processing and numerical simulation.
10/2013 – 08/2015	Research Associate — Sorbonne Universités (UTC), Compiègne, France MANDARIN project collaboration; analysis of 3D motion-capture data; musculoskeletal modelling.

EDUCATION

10/2010 – 09/2013	PhD, Human Movement Science (Distinction) — Paris-Sud University, France
10/2004 – 09/2010	Magister Artium, Sport Science — Christian-Albrechts-Universität zu Kiel
1996 – 2003	Abitur A-Level — Gottfried-Keller-Gymnasium

INDUSTRY & CONSULTANCY

2023 – 2026	Founder, Motion Metrics
2020 – 2021	YUVEDO GmbH — clinical research support
2019 – present	The Football Association — data analysis, “Demands of the Game”
2018 – present	Gait Up — clinical strategic partner
2017 – present	Noraxon — clinical key partner

SELECTED GRANTS & FELLOWSHIPS

2026	Intramural Grant CAU Kiel
2025	Validation Grant CAU Kiel
2022	JPND — Steps against the burden of Parkinson’s Disease (2022–2025). Co-applicant.
2019	MOBILISE-D (H2020/IMI2, 2019–2024) — work-package contributor to the grant application.
2019	IDEA-FAST (H2020/IMI2, 2019–2025) — work-package contributor to the grant application.
2018 – 2019	DAAD Research Stays for University Academics — hosting Prof. F. Marin (2019) and S. Jaramillo Isaza (2018) at Kiel University.
2014 – 2018	Qatar University Student Grants — three funded projects on walking speed, gait patterns and motion-tracking validation.
2012	JSPS Pre-Doctoral Fellowship — Tokyo University of Agriculture and Technology, Japan.
2008	DAAD Student Travel Grant (Canada).

TEACHING & SUPERVISION

2017 – present	Kiel University — lectures and seminars in Human Movement Science; wearables and (digital) markers in neurology; movement quantification from smartphone to laboratory and field.
2016 – 2017	Qatar University — motor learning, biomechanics and movement analysis.
2010 – 2013	University of Paris-Sud — exercise physiology, biomechanics, statistics and scientific working.
Supervision	> 15 medical doctoral students and support for 3 PhD students (Kiel); 7 Master's and 2 Bachelor's students (France); PhD support (ASPETAR).

EDITORIAL & PEER REVIEW

2024	Special Issue Editor, Gait & Posture — wearable sensors for movement analysis in real-world environments.
2024-present	Editor for Sport Sciences for Health
2020 – present	Topic Editor, Sensors (MDPI) — sensor data and clinically relevant outcomes in movement and gait analysis.
2025	Grant reviewer, Israel Ministry of Innovation, Science and Technology; Chair, Ageing Biomechanics track, ESB 2025 Congress.
2010 – present	Verified reviewer of 150+ articles (Web of Science), incl. Gait & Posture and Journal of Biomechanics.

ADMINISTRATIVE & COMMITTEE SERVICE

2021 – present	Examiner under the German Medical Devices Act (MPG).
2018 – present	Auditor for the German Society of Biomechanics.
2020 – 2024	Thesis reviewer (PhD / Master) for universities in Spain and South Africa; member, scientific organising committees (dvs Hochschultag 2021; BioRob 2016).

SELECTED INVITED TALKS

2024	Keynote, SOFMER, Toulouse — “Harnessing the Power of Wearable Sensors in Clinical Care”.
2024	Keynote, Velamed User Meeting, Osnabrück — “Inter-joint coordination in neurogeriatric patients”.
2021	Keynote, Noraxon User Meeting, Düsseldorf — “Movement analysis in neurogeriatric patients”.
2020	Webinars, Gait Up Academy and IMeasureU — inertial measurement units for human movement.
2019	Keynote, Noraxon User Meeting, Ghent — “Algorithm development for IMUs”; guest lecture, German Sport University Cologne.
2017	Biomechanics and Human Movement Symposium, Qatar University.

SELECTED AWARDS

2024	IGOR Prize, Psychologie und Gehirn (MOTION-BIDS; team award).
2021	1st place, DGG Poster Prize.
2020	DIVR Science Award — “Best Impact” (VR eye-tracking in Parkinson's research).
2014	Top-10, MSC Software Simulating Reality Contest.

TECHNICAL SKILLS

Programming	MATLAB, R, Python; statistical analysis in SPSS and JASP.
Methods	Wearable-sensor / IMU signal processing, 3D motion capture, gait & mobility analysis, musculoskeletal modelling, machine learning.

PUBLICATIONS

Author/co-author of 150+ peer-reviewed journal articles (2013–2026) and one book chapter. Full publication list available on request.

Top 5 Publications

1. Warmerdam E, Hausdorff JM, ... Hansen C, ... Maetzler W. Long-term unsupervised mobility assessment in movement disorders. *Lancet Neurol.* 2020;19(5):462–470.
2. Del Din S, Elshehabi M, ... Hansen C, Berg D, Rochester L, Maetzler W. Gait analysis with wearables predicts conversion to Parkinson disease. *Ann Neurol.* 2019;86(3):357–367.
3. Hansen C, Wei Q, Shieh JS, Fourcade P, Isableu B, Majed. Sample entropy, univariate and multivariate multi-scale entropy vs. classical postural sway parameters in young healthy adults. *Front Hum Neurosci.* 2017;11:206.

4. Whiteley R, van Dyk N, Wangenstein A, Hansen C. Clinical implications from daily physiotherapy examination of 131 acute hamstring injuries and their association with running speed and rehabilitation progression. *Br J Sports Med.* 2017.
5. Hansen C, Venture G, Rezzoug N, Gorce P, Isableu B. An individual and dynamic body segment inertial parameter validation method using ground reaction forces. *J Biomech.* 2014;47(7):1577–1581.

Selected Recent Publications (2022–2026)

1. Elshehabi M, Hansen C, ... Berg D, Maetzler W, Galna B. Turning slowly predicts future diagnosis of Parkinson's disease: a decade-long longitudinal analysis. *Ann Neurol.* 2026;99(1):114–123.
2. Yarnall AJ, Alcock L, ... Hansen C, ... Rochester L, Maetzler W. Monitoring mobility as an outcome measure in Parkinson's disease: the Mobilise-D study. *J Parkinsons Dis.* 2026;16(1):110–124.
3. Saegner K, Romijnders R, ... Hansen C, ... Maetzler W. Inter-segmental coordination patterns in Parkinson's disease during preferred walking speed. *J Neuroeng Rehabil.* 2025;23(1):39.
4. Delgado-Ortiz L, Buekers J, ... Hansen C, ... Garcia-Aymerich J. How do people with COPD walk? A European study on digitally measured real-world gait. *Eur Respir J.* 2025;66(1):2402303.
5. Hansen C, Brocherie F, ... Girard O. Statistical parametric mapping analysis of muscle-oxygenation kinetics in response to repeated-sprint training in hypoxia. *Int J Sports Physiol Perform.* 2025;20(7):1013–1016.
6. Jeung S, Cockx H, ... Hansen C, Oostenveld R, Welzel J. Motion-BIDS: an extension to the brain imaging data structure to organise motion data for reproducible research. *Sci Data.* 2024;11(1):716.
7. Hansen C, Teulier C, Micallef JP, Millet GP, Girard O. How does prolonged tennis playing affect lower limb muscle activity during first and second serves? *Eur J Sport Sci.* 2024;24(10):1472–1479.
8. Kirk C, Küderle A, ... Hansen C, ... Del Din S. Mobilise-D insights to estimate real-world walking speed in multiple conditions with a wearable device. *Sci Rep.* 2024;14(1):1754.
9. Corrà MF, Vila-Chã N, ... Hansen C, ... Maia LF. Peripheral neuropathy in Parkinson's disease: prevalence and functional impact on gait and balance. *Brain.* 2023;146(1):225–236.
10. Micó-Amigo ME, Bonci T, ... Hansen C, ... Del Din S. Assessing real-world gait with digital technology? Validation and recommendations from the Mobilise-D consortium. *J Neuroeng Rehabil.* 2023;20(1):78.
11. Hansen C, Ortlieb C, Romijnders R, Warmerdam E, Welzel J, Geritz J, Maetzler W. Reliability of IMU-derived temporal gait parameters in neurological diseases. *Sensors.* 2022;22(6):2304.
12. Marin F, Warmerdam E, ... Hansen C. Scoring the sit-to-stand performance of Parkinson's patients with a single wearable sensor. *Sensors.* 2022;22(21):8340.
13. Welzel J, Jacobsen N, ... Hansen C, Wollesen B, Maetzler W. Beyond protocol standardization: the importance of data curation and software transparency. *J Parkinsons Dis.* 2025;15(8):1544–1547.
14. Pilotto A, Labella B, ... Hansen C, ... Filosto M. Extensive digital health technology assessment detects subtle motor impairment in mild and asymptomatic Pompe disease. *Sci Rep.* 2025;15(1):29798.
15. Ippersiel P, Dixon PC, Warmerdam E, Romijnders R, Maetzler W, Hansen C. Influence of gait speed on inter-joint coordination in people with and without Parkinson's disease. *Biosensors.* 2025;15(6):367.
16. Oprey A, Vinod V, ... Hansen C, ... Kalbe E. Accelerometry-derived features of physical activity, sleep and circadian rhythm relate to non-motor symptoms in isolated REM sleep behaviour disorder. *J Neurol.* 2025;272(3):201.
17. Romijnders R, Atrsaei A, ... Hansen C, Manyakov NV, Maetzler W. Association of real-life postural-transition kinematics with fatigue in neurodegenerative and immune diseases. *NPJ Digit Med.* 2025;8(1):12.
18. Alhammoud M, Trama R, ... Hansen C, ... Morel B. Joint kinematic responses of Olympic-medallist skiers to repeated slalom runs. *Exp Physiol.* 2025;110(11):1561–1568.
19. Wodarski P, Jurkojc J, ... Hansen C. Trend-change analysis of postural balance in Parkinson's disease discriminates between medication state. *J Neuroeng Rehabil.* 2024;21(1):112.
20. Barcellos I, Hansen C, ... Maetzler W, Teive HAG. Spatiotemporal gait analysis of patients with spinocerebellar ataxia types 3 and 10 using inertial measurement units. *Cerebellum.* 2024;23(5):2109–2121.
21. Langer A, Hansen C, ... Maetzler W, Zach H. Vertical locomotion improves horizontal locomotion: effects of climbing on gait in Parkinson's disease. *J Neuroeng Rehabil.* 2024;21(1):63.
22. Zatti C, Pilotto A, Hansen C, ... Padovani A. Turning alterations detected by mobile health technology in idiopathic REM sleep behaviour disorder. *NPJ Parkinsons Dis.* 2024;10(1):64.
23. Kirk C, Zia Ur Rehman R, ... Hansen C, ... Yarnall AJ. Can digital mobility assessment enhance the clinical assessment of disease severity in Parkinson's disease? *J Parkinsons Dis.* 2023;13(6):999–1009.
24. Salis F, Bertuletti S, ... Hansen C, ... Del Din S. A multi-sensor wearable system for the assessment of diseased gait in real-world conditions. *Front Bioeng Biotechnol.* 2023;11:1143248.
25. Hansen C, Chebil B, Cockroft J, Bianchini E, Romijnders R, Maetzler W. Changes in coordination and its variability with an increase in functional performance of the lower extremities. *Biosensors.* 2023;13(2):156.
26. Scherbaum R, Moewius A, ... Hansen C, ... Tönges L. Parkinson's disease multimodal complex treatment improves gait performance: an exploratory wearable-device-supported study. *J Neurol.* 2022;269(11):6067–6085.

Earlier Selected Publications (2016–2021)

1. Polhemus A, Delgado Ortiz L, ... Hansen C, ... Puhon M. Walking on common ground: a cross-disciplinary scoping review on the clinical utility of digital mobility outcomes. *NPJ Digit Med*. 2021;4(1):149.
2. Whiteley R, Hansen C, Thomson A, Sideris V, Wilson MG. Lower-limb EMG activation during reduced-gravity running on an incline. *Gait Posture*. 2021;83:52–59.
3. Atrsaei A, Dadashi F, Hansen C, Warmerdam E, Mariani B, Maetzler W, Aminian K. Postural-transition detection and characterisation in healthy and patient populations using a single waist sensor. *J Neuroeng Rehabil*. 2020;17(1):70.
4. Warmerdam E, Romijnders R, Welzel J, Hansen C, Schmidt G, Maetzler W. Quantification of arm swing during walking in healthy adults and Parkinson's disease patients. *Sensors*. 2020;20(20):5963.
5. Zhou Y, Romijnders R, Hansen C, van Campen J, Maetzler W, Hortobágyi T, Lamothe CJC. The detection of age groups by dynamic gait outcomes using machine-learning approaches. *Sci Rep*. 2020;10(1):4426.
6. Hansen C, Sanchez-Ferro A, Maetzler W. How mobile health technology and electronic health records will change care of patients with Parkinson's disease. *J Parkinsons Dis*. 2018;8(s1):S41–S45.
7. Hansen C, Gosselin F, Ben Mansour K, Devos P, Marin F. Design-validation of a hand exoskeleton using musculoskeletal modelling. *Appl Ergon*. 2018;68:283–288.
8. Killeen T, Elshehabi M, ... Hansen C, ... Maetzler W. Arm-swing asymmetry in overground walking. *Sci Rep*. 2018;8(1):12803.

Book Chapter

Majed L, Hansen C, Alkhatib A. Characteristics of preferred gait patterns: considerations for exercise prescription. In: *Sedentary Lifestyle, Risk Factors and Physiological Implications*. Nova Publishers, 2016. ISBN 978-1-63484-683-7.

REFERENCES

Prof. Dr. Walter Maetzler

Dept. of Neurology, UKSH Campus Kiel, Christian-Albrechts-Universität
w.maetzler@neurologie.uni-kiel.de

Prof. Dr. Frédéric Marin

University of Technology Chemnitz (Applied Movement Sciences)
frederic.marin@hsw.tu-chemnitz.de

Dr. Rodney Whiteley

Assistant Director of Rehabilitation, ASPETAR, Doha, Qatar
Rodney.Whiteley@aspetar.com

Dr. Nicolas Vuillerme

Université Grenoble Alpes, AGEIS · Institut Universitaire de France
nicolas.vuillerme@univ-grenoble-alpes.fr