

YONG KUK KIM

Health Data Researcher | Wearable & Physiological Data, Insight & Strategy

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Right to work in the UK (no visa sponsorship required)

PROFILE

PhD researcher who turns raw, messy wearable and health data into clear, validated insight at scale. Works fluently with large, heterogeneous datasets, from a 2,000+ participant ageing cohort to real-world wearable studies, combining statistics and modern ML to uncover trends and predictive signals. Reasons from first principles, uses AI tools (including LLMs) to get to truth faster, and translates complex findings into clear, high-signal writing for technical and clinical audiences. Comfortable in ambiguous, fast-moving problem spaces where the right questions emerge through delivery and iteration.

TECHNICAL SKILLS

Languages: Python (preferred), MATLAB, R

Statistics & Analysis: Cohort and user-behaviour analysis, real-world evidence, statistical modelling, classification and prediction, interpretable models

Machine Learning & AI Tools: PyTorch; deep learning (transformers, diffusion models, recurrent networks); clustering and pattern discovery; LLMs for research synthesis and literature meta-analysis

Environment & Compute: Linux, Git, Jupyter; HPC / cluster computing (ETH Euler)

Domain: Wearables and inertial sensors (IMU), gait and human movement; large-scale health and clinical research data; digital health and biomarkers; governed data environments with privacy, ethics and compliance requirements

Research & Communication: Meta-research and literature synthesis, research briefs and data-backed playbooks, data visualisation and clear comparison documents, scientific writing, cross-functional communication

RESEARCH & PROFESSIONAL EXPERIENCE

ETH Zürich, Laboratory for Movement Biomechanics

Zürich, Switzerland

Doctoral Researcher (PhD). Supervisors: Prof. W. R. Taylor, Dr. N. B. Singh

Jan 2020 – Oct 2025

- Built end-to-end pipelines for wearable sensor data, from collection and preprocessing through feature engineering, modelling, and validation, applying statistics and ML to uncover trends and predictive signals from large-scale, real-world data.
- Worked across datasets ranging from controlled studies (20–100 participants) to a 2,000+ participant Singapore ageing cohort (TARGET), handling real-world-scale data and leading the technology transfer that turned lab-developed methods into a deployed real-world monitoring system.
- Designed and trained modern deep-learning models (transformers, diffusion models, recurrent networks) on wearable-sensor data, detecting events reliably across sensor placements and age groups (published in IEEE Sensors, PLOS ONE).
- Collaborated cross-functionally with clinicians, physiotherapists, and engineers across hospital and research partners, conducting meta-research across clinical and behavioural literature to identify high-leverage insights, and translating findings into clear, high-signal briefs for technical and non-technical stakeholders.
- Authored 8 peer-reviewed journal articles plus 2 under review (5 first-author) and delivered 10+ international conference presentations (ISB, ESMAC), converting dense analysis into clear, high-signal writing for technical and clinical audiences.

ETH Zürich

Zürich, Switzerland

Research Assistant

Oct 2018 – Jun 2019

- Analysed neuromuscular control of gait stability under varying weight-bearing conditions, characterising how the body stabilises movement under altered load.

Hanyang University

Seoul, South Korea

Research Intern

Jul 2018 – Sep 2018

- Developed gait-cycle detection and feature-extraction algorithms from inertial measurement unit (IMU) data, enabling reliable biometric gait recognition from wearable sensors.

Samsung Advanced Institute of Technology (SAIT)

London, UK

Technology Consultant (Part-time)

Nov 2015 – Nov 2016

- Investigated how emerging sensors, platforms, and patent landscapes were shaping new technologies, delivering time-critical assessments that supported adoption decisions and generated significant cost savings.

Hoare Lea
Engineering Intern

London, UK
Jun 2016 – Sep 2016

- Contributed to the electrical design of eight large-scale UK building projects, producing schematics for power, lighting, and security systems with BIM and multidisciplinary engineering teams.

University College London (UCL)
Research Intern

London, UK
Aug 2017 – Sep 2017

- Designed and implemented a sound-source localisation system using Time Difference of Arrival (TDoA) and triangulation, achieving accurate real-time source tracking.

EDUCATION

ETH Zürich
PhD (Dr. sc. ETH Zürich), Movement Biomechanics

Zürich, Switzerland
Jan 2020 – Oct 2025

Thesis: *Towards automated functional assessment: a framework leveraging sensory-input manipulation, wearable sensors, and computational approaches.*

University College London (UCL)
MEng, Electronic and Electrical Engineering (Upper Second-Class Honours)

London, UK
2014 – 2018

SELECTED PUBLICATIONS

- Y. K. Kim** et al. (2024). Leveraging deep learning and wearables for automatically identifying gait events: effects of age and sensor location. *IEEE Sensors Journal*.
- Y. K. Kim**, M. Gwerder, W. R. Taylor, H. Baur, N. B. Singh (2024). Adaptive gait responses to varying weight-bearing conditions: inferences from gait dynamics and H-reflex magnitude. *Experimental Physiology*.
- Y. K. Kim**, R. M. S. Visscher, E. Viehweger, N. B. Singh, W. R. Taylor, F. Vogl (2022). A deep-learning approach for automatically detecting gait events from foot-marker kinematics in children with cerebral palsy. *PLOS ONE*.
- C. Dammeyer, C. Nüesch, R. M. S. Visscher, **Y. K. Kim**, et al. (2024). Classification of inertial-sensor-based gait patterns of orthopaedic conditions using machine learning. *Journal of Orthopaedic Research*.
- L. Jaeger, ... **Y. K. Kim**, et al. (2023). How the CYBATHLON competition has advanced assistive technologies. *Annual Review of Control, Robotics, and Autonomous Systems*.

Full publication list (8 journal articles, 2 under review, 10+ conference presentations): [Google Scholar](#)

LEADERSHIP & PROFESSIONAL SERVICE

CYBATHLON: Head of Discipline, Functional Electrical Stimulation (FES) Bike Race Sep 2021 – Jan 2025

- Defined competition standards for assistive technologies and coordinated international teams and stakeholders across multiple global hubs.

UCL IEEE Student Branch: Co-Founder

Jan 2015 – Nov 2016

- Organised interdisciplinary technical seminars with speakers from leading universities and industry.

AWARDS & INVITED TALKS

Invited Talk: FHT @ ETH, Singapore

Jun 2025

AO Research Opportunity Award

Nov 2023

Invited Talk: BMRR @ Yonsei Severance Rehabilitation Hospital

Aug 2021