

Rory Lambe

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PhD Researcher in Wearables & Digital Health with first-authored publications in Nature, Nature Sensors and npj Digital Medicine, specialising in wearable device validation and cardiovascular digital biomarkers. Skilled in designing observational and interventional studies, building reproducible Python/R workflows, and applying ML to longitudinal physiological time-series to translate data into decision-ready insights. Clinical foundation as a Chartered Physiotherapist, with cross-functional experience spanning academia, industry (Samsung, Google Fitbit) and health-tech entrepreneurship.

Research and Technical Skills

- **Study design & management:** Design of observational, validation and randomised controlled trials. Recruitment of 300+ participants across five trials. IRB and ethics engagement. Independent management of a year-long 130-patient clinical trial at a hospital.
- **Statistical & computational methods:** Time-series analysis and processing pipeline design. Mixed-effects modelling, regression and machine learning applied to physiological wearable datasets. Reproducible GitHub workflows.
- **Data Science languages & libraries:** Python (scikit-learn, aeon, Pandas, NumPy, SciPy, Matplotlib, Plotly, Seaborn). Meta-analysis in R (dplyr, metafor, mada, ggplot2).
- **Domain Expertise:** Chartered Physiotherapist with experience in cardiac rehab, neurology and respiratory medicine. Background in anatomy, exercise physiology, cardiometabolic health and disease management.
- **Scientific dissemination:** 13 peer-reviewed publications (incl. Nature Careers, Nature Sensors, npj Dig Med, PLOS Digital Health). Platform presentation at World Physiotherapy Congress.

Education & Research Experience

PhD in Wearables, AI and Digital Health

2023 – 2027

Rinn AI Centre at University College Dublin

- Developing machine learning models to classify cardiovascular health using wearable sensor data. 130 patients with cardiovascular disease recruited and managed as part of my year-long trial.
- Designing data pipelines to clean, process and extract features from high-frequency time series consumer wearable data.
- Building reproducible Python workflows for preprocessing, feature engineering, visualisation and model evaluation.
- Led validation studies analysing accuracy of commercial wearable devices (Apple Watch, Pixel Watch) across metrics including heart rate, VO_2 max and energy expenditure against criterion measures. Bland-Altman agreement analysis and meta-analysis.
- Courses taken: Machine Learning with Python, Biostatistics in R, AI for Time Series (aeon), Data Science in Python.

Research Scholar

2023

Research Ireland Insight Centre for Data Analytics

- Selected for an industry research partnership with **Samsung** to develop a reinforcement learning exercise prescription mobile app.
- Evaluated reinforcement learning feedback mechanisms on user satisfaction and physiological training intensity.
- Developed exercise library and designed exercise sessions.

BSc Physiotherapy

2019 – 2023

University College Dublin

- Over 1000 hours clinical experience in cardiorespiratory, neurological and respiratory physiotherapy. Modules in biomechanics, physiology, clinical human anatomy, kinesiology, performance science and clinical trial methodologies. EQF Level 4 Personal Trainer.

Entrepreneurial & Leadership Experience

- **Founder of Clia**, a start-up using wearable data to monitor and improve cardiovascular health. Named one of Bank of Ireland's *Top 100 Irish Start-ups to Watch*.
- **NovaUCD Student Enterprise Competition (2024):** Overall Winner.
- **Conception X European Venture Programme (2025):** Completed 9-month venture building programme specifically tailored for PhD researchers commercialising technical IP.
- **NovaUCD Customer Discovery Programme:** Completed customer validation, market research and clinical user workflow analyses.

Additional Experience

University Tutor and Lecturer • University College Dublin

2024 – current

- Tutor for Functional Anatomy & Kinesiology module for undergraduate physiotherapy and sports science students. Examiner for written and practical exams. Guest lectures on evidence-based practice to medical and physiotherapy students.

Secondary School Teacher • Coláiste Íosagáin

2023 – 2024

- Taught Irish to 2nd and 4th-year students for the duration of the academic year. Also coached school Camogie teams.

Sports Physiotherapist • UCD Rugby

2022 – 2023

- Pitch-side emergency medical care, rehabilitation and injury prevention strategies for Under-20 male and female rugby squads for the 2022/23 season.

Selected Publications

1. **Lambe, R.** et al. (2026). *Promise, Proof and Practice: how to realise the clinical value of consumer wearables*. **Nature Sensors**.
2. **Lambe, R.** et al. (2026). *The accuracy of measurements from Apple Watch: a living systematic review and meta-analysis*. **npj Digital Medicine**.
3. **Lambe, R.** et al. (2025). *Stressed out by PhD life? Five strategies to take back the joy*. **Nature Careers**.
4. **Lambe, R.** et al. (2026). *Accuracy of VO_2 max Estimates from Apple Watch Series 10*. Mayo Clinic Proceedings: Digital Health.
5. **Lambe, R.** et al. (2025). *Investigating the accuracy of Apple Watch VO_2 max measurements: A validation study*. PLOS ONE.
6. Doherty, C. and **Lambe, R.** (2026). *Accuracy of heart rate measurement using AirPods Pro 3 during graded treadmill exercise: A laboratory-based validation study*. PLOS Digital Health.
7. O'Grady, B. and **Lambe, R.** et al. (2024). *The Validity of Apple Watch Series 9 and Ultra 2 for Serial Measurements of Heart Rate Variability and Resting Heart Rate*. Sensors.
8. Doherty, C., **Lambe, R.** et al. (2025). *An Evaluation of the effect of app-based exercise prescription using RL on satisfaction and exercise intensity: a randomised crossover trial*. JMIR mHealth and uHealth.