Digital Health Research Group

School of Engineering Mathematics and Technology

Data Science Lab Away Day

Presenter:

Dr. Miquel Perello Nieto, Senior Research Associate

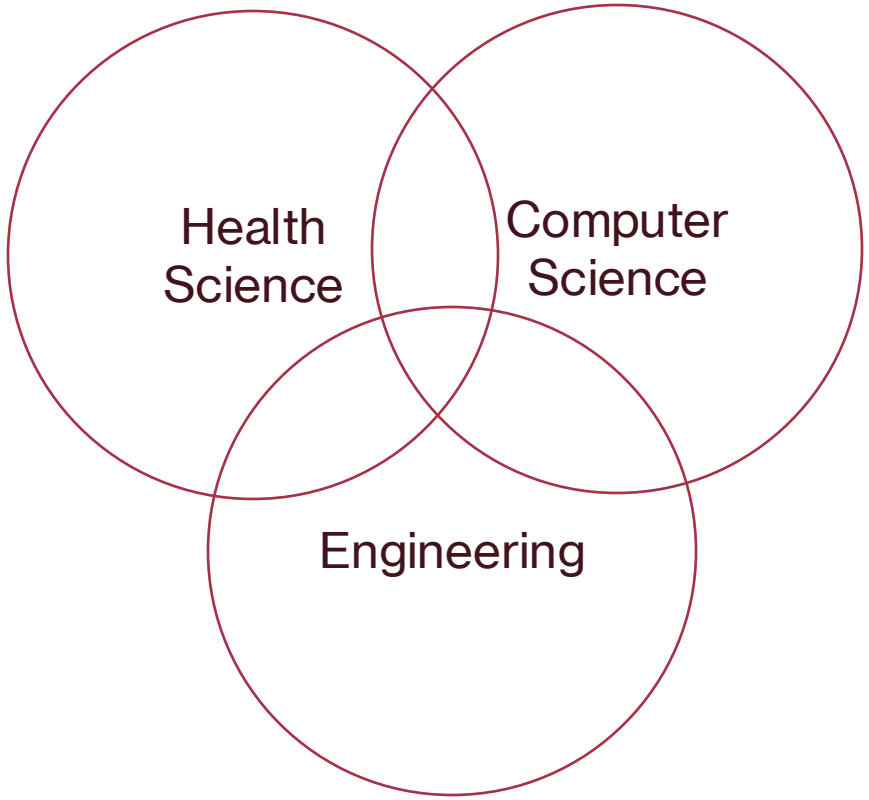
Monday 23 June 2025

University of BRISTOL

Digital Health Research Group:

A multidisciplinary team with more than 100 academics

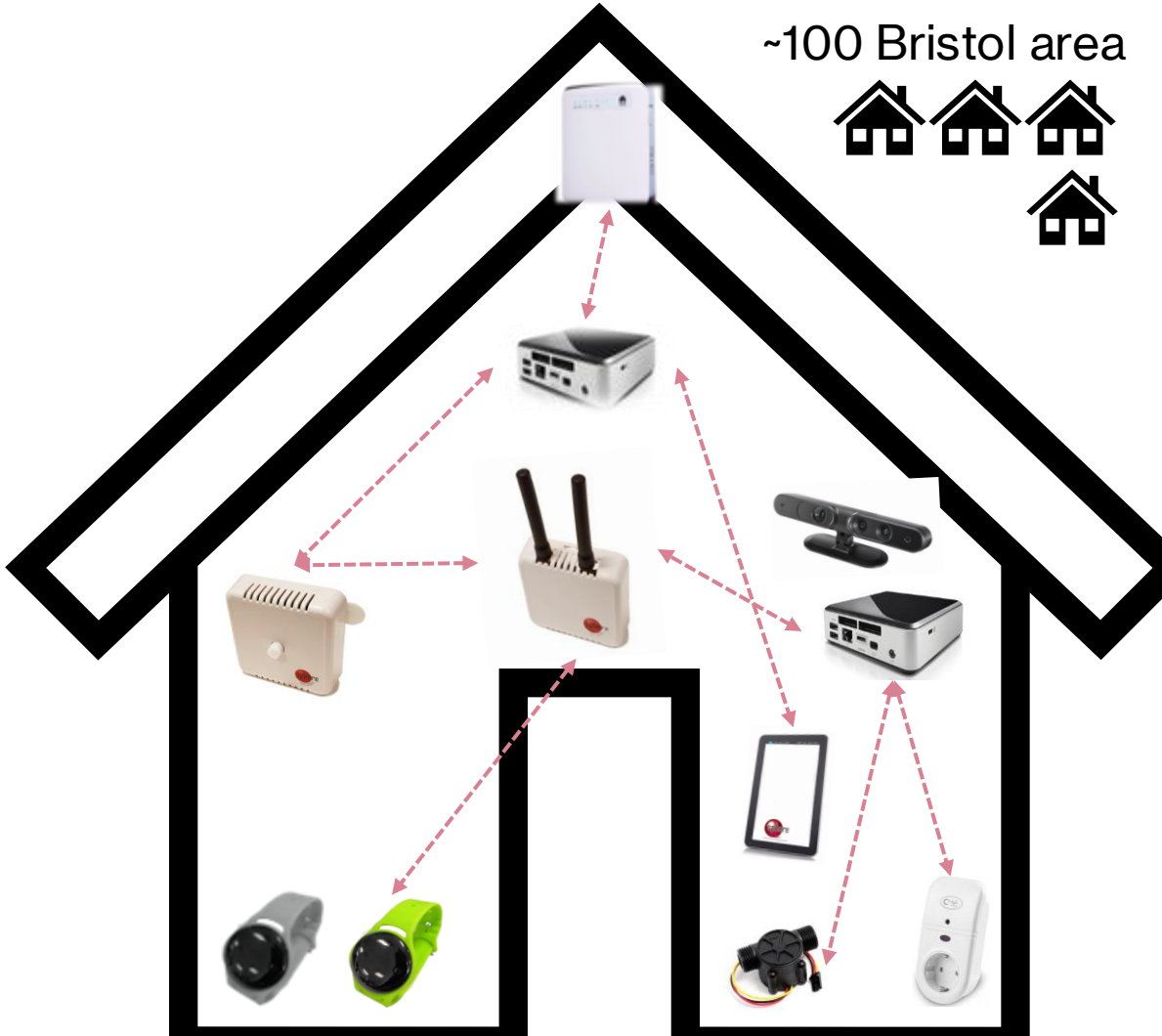
- **Research**
  - SPHERE
  - TORUS
  - LEAP Digital Health Hub
- **Skills & Knowledge**
  - CDT in Digital Health and Care
  - MSc in Digital Health and Care
- **Networking**
  - Digital Health Seminar Series
  - Festival of Digital Health



SPHERE

Sensor Platform for Healthcare in a Residential Environment

- Flagship project for the Digital Health
- **£25M** of funding since 2013 from EPSRC, MRC and H2020
  - CUBOiD, PD Sensors, OPERA, EurValve, HEmiSPHERE, SPHERE-Cared
- Design and deployment of custom IoT technologies in **over 100** local homes
- Collaborations between researchers, clinicians and the public
- Research in wearable sensors, low power communication networks, computer vision systems and machine learning



TORUS

Transforming the **O**bjective **R**eal-world measurement of **S**ymptoms

- A novel platform of sensing technologies for patients' own homes, to **monitor Parkinson's disease progression**
- **£6.17M** of funding from EPSRC (2023-2028)
- **39** staff members in Bristol and Newcastle
- 6 Work packages:
    1. A Wearable for Data Fusion
    2. Video Sensing for Data Fusion
    3. Data Fusion and Distributed Machine Learning
    4. System Integration, Security, Testing and Trial Support
    5. PPIE, Codesign, Ethics and Acceptability
    6. Into the Real World

The continuation of the SPHERE project

TORUS Team at the University of BRISTOL

Ian Craddock
Director

Project Staff

Co-Investigators

Majid Mirmehdi

George Oikonomou

Aisling O'Kane

Cathy Morgan

Kenton O'Hara

Mae Hazell

Zahraa Abdallah

George Oikonomou

Raul Santos Rodriguez

James Pope

Telmo de Menezes e Silva Filho

Lindsay Bishop

Researchers

Em Tonkin

Shuhao Dong

Jingjing Liu

Elaine Czech

Amirhossein Dadashzadeh

Guanxiong Sun

Oscar Illingworth

TORUS Team at Newcastle University

Lynn Rochester
Co-Director

Paul Watson

Abi Durrant

Silvia Del Din

Alison Yarnall

David Kirk

Co-Investigators

Lenia Margariti

Kirsty Scott

Lisa Alcock

Chloe Hinchliffe

Ann Gibson
Project Staff

Researchers

TORUS Highlighted research

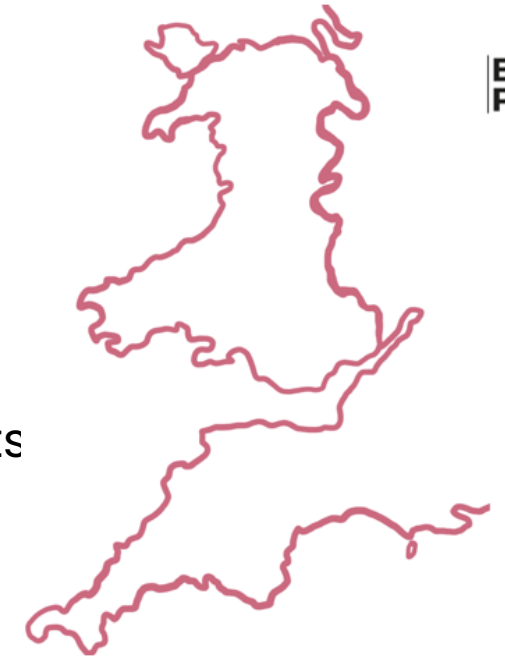
- Duan, S., Dadashzadeh, A., Whone, A. L. & Mirmehdi, M. **Trajectory-guided Motion Perception for Facial Expression Quality Assessment in Neurological Disorders.** (2025). 19th International Conference on Automatic Face and Gesture Recognition (FG). Institute of Electrical and Electronics Engineers (IEEE), (International Conference on Automatic Face and Gesture Recognition).
- Elaine Czech, Ewan Soubutts, Ian J Craddock, Aisling Ann O'Kane. **Understanding the Multimodal Voice Assistant as an Informal and Social Care Support Tool in the UK.** (2025). ACM Conversational User Interfaces Conference.

LEAP Digital Health Hub

Leadership Engagement Acceleration & Partnership

LEAP
A DIGITAL HEALTH HUB FOR THE SOUTH WEST AND WALES

- Hub for the South West of England and Wales
- **5** regional universities and HDR UK
- Led by the University of Bristol
- Network of **200+** organisations
- **£4M** of funding from EPSRC (2023-2026)
- **£1M** of research funding allocated
- Portfolio of **10** collaborative research projects
    1. Care outside of the hospital
    2. Service and resource planning
    3. Frailty, fall prediction and fall prevention
    4. Smartphone and wearable technologies



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University of BRISTOL · UWE Bristol University of the West of England · UNIVERSITY OF BATH · CARDIFF UNIVERSITY PRIFYSGOL CAERDYDD · University of Exeter · HDRUK Health Data Research UK · UKRI Engineering and Physical Sciences Research Council

LEAP Team in the University of BRISTOL

LEAP
A DIGITAL HEALTH HUB FOR THE SOUTH WEST AND WALES

Ian Craddock
Hub Director

Hanna Isotalus
Deputy Director

Rachel Prior
Hub Manager

Karen Dawe
Skills and Knowledge Deputy Director

Andrew Dowsey
Fellowship Programme Director

Raul Santos Rodriguez
Capability Programme Director

Kirsten Cater
Co-I

Laura Yiqing Wang
Online Coordinator

Emma Brown
Hub Administrator

Miquel Perello Nieto

Matthew Wragg

Nawid Keshtmand

Emily Nielsen

Researchers in Residence

LEAP Team in other organizations

LEAP
A DIGITAL HEALTH HUB FOR THE SOUTH WEST AND WALES

UWE Bristol | University of the West of England

Richard Luxton
Lead for UWE Bristol

Andy Gibson
Co-I

Janice Kiely
Co-I

UNIVERSITY OF BATH

David A. Ellis
Lead for University of Bath

Christos Vasilakis
Fellowships Programme Co-Director

CARDIFF UNIVERSITY
PRIFYSGOL CAERDYDD

Daniel Gartner
Lead for Cardiff University

Maneesh Kumar
Co-I

Paul Harper
Co-I

University of Exeter

Martin Pitt
Lead for University of Exeter

Krasimira Tsaneva-Atanasova
Co-I

HDRUK
Health Data Research UK

Christopher Yau
Lead for HDR UK

Antonia Dingle
Skills and Knowledge Programme Representative

Rosie Wakeham
Skills and Knowledge Programme Representative

LEAP Highlighted research

LEAP
A DIGITAL HEALTH HUB FOR THE SOUTH WEST AND WALES

1. Tong Computer Interface for Widening Computer Access (Withey, D., et al., UWE)
2. Novel Wearable-based Stress Detection Using Earables and Smartwatches (Clarke, C., et al., Bath)
3. Synthetic Data Generation for Privacy-Preserving Prediction Modelling in Critical Care
   (McWilliams, C., et al., Bristol)
4. Predicting Falls Using Routinely Collected Primary Care Data in Heart Failure Population
   (Owusu, B., et al., Exeter)

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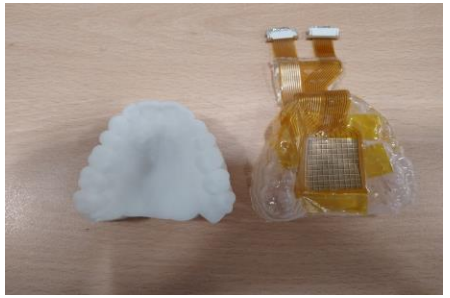

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CDT in Digital Health and Care

Centre for Doctoral Training

- **£6.6M** of funding from EPSRC (2019-2027)
- **5** cohorts (**~10** students per year, total **50**)
- Research interests include:
  A. Precision Digital Health & Self-Management
  B. AI & Machine Learning for Prediction & Diagnosis
  C. Mental Health & Behaviour Change Technologies
  D. Health Robotics & Simulation
  E. Wearables & Digital Biomarkers
  F. Human-Centred Design & Inclusive Technologies
  G. Global & Public Health Innovation

CDT Management Team

Ian Craddock
Previous Director

Amberly Brigden
Director

Hanna Isotalus
Deputy Director

Lucy Yardley
Research Programme Lead

Robert Piechocki
Research Programme Lead

Oscar Cordero Llana
Training Programme Lead

Raul Santos Rodriguez
Training Programme Lead

George Oikonomou
Technician Task Manager

Tom Verheyden
CDT Manager

Jon Bird

Amberly Bridgen

Erin Dooley

Hanna Kristiina Isotalus

Aisling O'Kane

Research and Teaching Staff

CDT Students by cohort

Digital Health and Care

2023

Anika Pinto

Sarah Koerner

Hans Johnson

Tefkros Chimonas

Emily Quilter

Jerusaa Vasikaran

Ryan Beck

Monib Sediqi

Angela Pateman

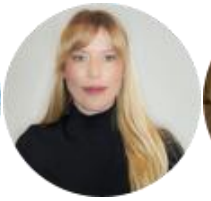
Weiyi Li

2022

Qiushuo Cheng

Abiola Saka

Yujie Dai


Amanda Sissons

Cicely Mathews

Fin Schofield

Dina Molnar

Abdelrahman Otify

Yelu Gu

Ellen Weir

Sarah Wilkie-Ryan

Verónica Blanco Gutiérrez

2021

Marah Alassaf

Timeyin Arueyingho

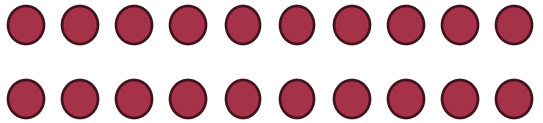
Sydney Charitos

Eszter Vigh

Daniel Joinson

Gavryel Martis

Sammy Shorthouse



... and 20 more from 2019-2020

CDT Highlighted research

- Quilter, Emily & Butlin, Cynthia & Carrion, Carme & Ruiz-Postigo, Jose-Antonio. **The WHO Skin NTD mobile application – a paradigm shift in leprosy diagnosis through Artificial Intelligence?**. Leprosy Review. (2024).
- Arueyingho O, Aprioku J, Marshall P, O'Kane A. **Insights Into Sociodemographic Influences on Type 2 Diabetes Care and Opportunities for Digital Health Promotion in Port Harcourt, Nigeria: Quantitative Study**. JMIR Diabetes. (2024).
- Wijewardhane, N., Denniss, A.R., Uppington, M. et al. **Long-term imaging and spatio-temporal control of living cells using targeted light based on closed-loop feedback.** J Micro-Bio Robot. (2024).
- Deighan, M.T., Simpson, D., Brigden, A. et al. **Perspectives of healthcare professionals on the use of immersive virtual reality in teenage and young adult oncology: a qualitative interview study.** BMC Digit Health 2, 22 (2024).

Digital Health Seminar Series

For more information visit:
bristol.ac.uk/dh-seminars

Miquel Perello Nieto

Matthew Wragg

Emily Nielsen

Sarah Koerner

Nawid Keshtmand

Emma Brown

Developing international interdisciplinary connections between academics, healthcare professionals, and industry.

Tuesdays
14:00 – 15:00
Bi-weekly

Seminar Room 1,
AIMS Conference Centre

University of BRISTOL

Digital Health and Care

LEAP
A DIGITAL HEALTH HUB FOR THE SOUTH WEST AND WALES

Festival of Digital Health

South West England and Wales

30 June - 4 July 2025

Scan the QR or visit
bit.ly/leap-festival
for more information

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