Terence **McSweeney**

Marie Skłowdowska-Curie Early Stage Researcher

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Education

University of Oulu — *Oulu, Finland*

Ph.D. (in progress), Biomedical Engineering — *Feb. 2021 - Feb. 2025 (expected)*

- **Project Title:** The classification of intervertebral disc radiological signs and relation with multi-omics profiles
- **Supervisors:** Prof. Simo Saarakkala (PI), Prof. Aleksei Tiulpin, Prof. Jaro Karppinen
- **Funding:** Marie-Skłowdowska-Curie ITN **Disc4All** and Finnish Cultural Foundation doctoral research grant

Swansea University — *Swansea, Wales*

P.G.Cert., Teaching in Higher Education — *2018*

University of Edinburgh — *Edinburgh, Scotland*

M.Sc., Clinical Management of Pain — *2014*

University of Westminster & BCOM — *London, England*

M.Ost., Osteopathy — *2011*

Experience

University of Oulu — *Oulu, Finland*

Doctoral Researcher, Research Unit of Health Science and Technology — *Feb. 2021 - present*

Bournemouth University & AECC — *Bournemouth, England*

Doctoral Researcher and Teaching Assistant, Faculty of Health and Social Science — *Feb. 2020 - Jan. 2021*

Back on the Move — *Seef, Kingdom of Bahrain*

Senior Osteopath — *2017 - 2020*

Swansea University — *Swansea, Wales*

Lecturer in Osteopathy (Full-Time) — *2014 - 2017*

- Clinical supervision of students at Swansea University and NHS (ABMU) Health Board Clinics
- Academic supervision of MOst research dissertations (FHEQ level 7)
- Lecturing on Masters in Osteopathy programme
- Led and developed modules including clinical biomechanics, anatomy, dissection, autonomous osteopathic practice
- College of Human and Health Sciences Academic Integrity Officer

Korean Osteopathic Institute — *Seoul, South Korea*

Faculty Member — *2012 - 2020*

- Delivery of postgraduate workshops twice yearly to allied health professionals

University College London Hospital, Great Ormond Street — *London, England*

Institute of Osteopathy Musculoskeletal Intern — *Sep. 2015 - Mar. 2016*

British College of Osteopathic Medicine — *London, England*

Associate Lecturer (Part-Time) — *2011 - 2014*

- Clinic tutoring and delivery of modules including anatomy and clinical methods
- Teaching anatomy at University College London dissection lab

BodyMatters Clinic — *London, England*

Associate Osteopath — *2011 - 2014*

Perfect Balance Clinic — *London, England*

Associate Osteopath — *2011 - 2014*

Grants and Awards

Finnish Cultural Foundation, €30000
Finland
SUOMEN KULTTUURIRAHASTO GRANT FOR DOCTORAL RESEARCH IN THE FIELD OF MEDICINE
2024

Fulbright Commission, €13000
United States of America
IRELAND-USA ALL DISCIPLINE STUDENT AWARD TO VISIT UCSF
2023

Finnish Spine Society (Suomalainen Selkätutkimusseura Ry), €500
Helsinki, Finland
EARLY CAREER RESEARCHER TRAVEL AWARD FOR BEST ABSTRACT
2023

International Society for the Study of the Lumbar Spine (ISSLS), €1000
Melbourne, Australia
ISSLS 2023 MEETING EARLY CAREER RESEARCHER TRAVEL AWARD
2023

Finnish Spine Society (Suomalainen Selkätutkimusseura Ry), €1000
Helsinki, Finland
EARLY CAREER RESEARCHER TRAVEL AWARD FOR BEST ABSTRACT
2022

Society of Back Pain Research, €2180
London, England
TRAVEL FELLOWSHIP TO DEPARTMENT OF GENETIC EPIDEMIOLOGY AND TWINS RESEARCH, KING'S COLLEGE LONDON
2022

De Luca Foundation and Delsys Incorporated, €7000
Massachusetts, USA
TRIGNO-AVANTI RESEARCH SYSTEM COMPETITION
2020

Research Output

PUBLICATIONS

- Kowlagi, N., Antti Kemppainen, A., Panfilov, E., **McSweeney, T.**, Saarakkala, S., Nevalainen, M., Jaakko Niinimäki, J., Karppinen, J., Tiulpin, A. (2024) Semi-automatic assessment of facet tropism from lumbar spine MRI using deep learning: a Northern Finland Birth Cohort study. *Spine* 49, 630–639. DOI: https://doi.org/10.1097/brs.0000000000004909

- Crump, K., Alminnawi, A., Bermudez-Lekerika, P., Compte, R., Gualdi, F., **McSweeney, T.**, Muñoz-Moya, E., Nüesch, A., Geris, L., Dudli, S., Karppinen, J., Noailly, J., Le Maitre, C., Gantenbein, B. (2023) Cartilaginous endplates: a comprehensive review on a neglected structure in intervertebral disc research. *JOR Spine* e1294. DOI: https://doi.org/10.1002/jsp2.1294

- Compte, R., Granville Smith, I., Isaac, A., Danckert, N., **McSweeney, T.**, Liantis, P., Williams, F. (2023) Are current machine learning applications comparable to radiologist classification of degenerate and herniated discs and Modic changes? A systematic review and meta-analysis. *Eur Spine J* 1-24. DOI:10.1007/s00586-023-07718-0

- **McSweeney, T.**, Tiulpin, A., Saarakkala, S., Niinimäki, J., Windsor, R., Jamaludin, A., Kadir, T., Karppinen, J., Määttä, J. (2023). External validation of SpineNet, an open-source deep learning model for automated grading of lumbar disc degeneration MRI features, using the Northern Finland Birth Cohort 1966. *Spine* 48 (7), 484-491. DOI: 10.1097/BRS.0000000000004572

- Kowlagi, N., Nguyen, H.H., **McSweeney, T.**, Saarakkala, S., Määttä, J., Karppinen, J., Tiulpin, A. (2023). A stronger baseline for automatic Pfirrmann grading of lumbar spine MRI using deep learning. *2023 IEEE 20th Int. Symp. Biomed. Imaging (ISBI)* 00, 1–5 DOI:10.1109/ISBI53787.2023.10230814

- Griffiths, F., **McSweeney, T.**, Edwards, D. (2019). Immediate effects and associations between interoceptive accuracy and range of motion after a HVLA thrust on the thoracolumbar junction: a randomised controlled trial. *Journal of Bodywork and Movement Therapies* 23(4), 818-824. DOI: 10.1016/j.jbmt.2019.06.007

- Cathcart, E., **McSweeney, T.**, Johnston, R., Young, H., Edwards, D. (2018). Immediate biomechanical, systemic, and interoceptive effects of myofascial release on the thoracic spine: a randomised controlled trial. *Journal of Bodywork and Movement Therapies* 23(1), 74-81. DOI: 10.1016/j.jbmt.2018.10.006

- **McSweeney, T.**, Thomson, O., Johnston, R. (2012). The immediate effects of sigmoid colon manipulation on pressure pain thresholds in the lumbar spine. *Journal of Bodywork and Movement Therapies* 16(4), 416-423. DOI: 10.1016/j.jbmt.2012.02.004

CONFERENCES AND TALKS:

- *Poster presentation at ISSLS 2024, Milan, Italy:* Mcsweeney, T., et al. Lumbar spine T2-weighted MRI radiomics successfully classify intervertebral disc degeneration in the Northern Finland Birth Cohort 1966.
- *Podium presentation at ISSLS 2023, Melbourne, Australia:* McSweeney, T., et al. Learning a model of lumbar disc degeneration progression from a cross-sectional population cohort.
- *Health Sciences and Technology Research Seminar 2022, University of Oulu* McSweeney, T. Quantitative approaches to lumbar disc degeneration image phenotyping.
- *Podium presentation at Pain Science in Motion 2022, Maastricht, Netherlands:* McSweeney, T., et al. Spine mri in low back pain: a deep learning approach to modelling new imaging phenotypes. Pain Practice. DOI: 10.1111/papr.13128
- *Poster presentation at OARSI World Congress 2022, Berlin, Germany:* McSweeney, T., et al. External validation of spinenet, a deep learning model for automated grading of lumbar disc degeneration mri features, using the northern finland birth cohort. Osteoarthritis and Cartilage 30, S86 DOI: 10.1016/j.joca.2022.02.106
- *Medical Imaging, Physics, and Technology Research Seminar 2021, University of Oulu* McSweeney, T. Intervertebral disc degeneration image classification to group phenotype combinations as functions of molecular and clinical data.

Additional Training

Disc4All Innovative Training Network Secondments, London
London, England

ACADEMIC SECONDMENT AT KING'S COLLEGE LONDON, DEPARTMENT OF GENETIC EPIDEMIOLOGY AND TWIN RESEARCH
Oct. 2023 - Jan. 2024

AI for Global Goals
Oxford, England

OXML SUMMER SCHOOL, OXFORD UNIVERSITY MATHEMATICAL INSTITUTE
Jul. 2023

Disc4All Innovative Training Network Secondments, Barcelona
Barcelona, Spain

ACADEMIC AND INDUSTRIAL SECONDMENTS
Mar. 2022 - Aug. 2022

- *Universitat Pompeo Fabra:* Advanced image classification through radiomics, supervised by Prof. Gemma Piella
- *GALGO Medical SL:* Image analysis tool design for clinical exploitation, supervised by Dr. Ludovic Humbert
- *Barcelona Supercomputing Centre:* Standardisation of 'omics' data to integrate molecular information in image classification, supervised by Prof. Josep Lluis Gelpi

Disc4All Innovative Training Network Winter and Summer Schools
Various locations

WEEK-LONG WORKSHOPS IN MULTI-SCALE MODELLING AND TRANSLATIONAL MEDICINE APPLIED TO DISC DEGENERATION
2021 - 2023

- University of Oulu, Finland (online), 2021
- Universitat Pompeu Fabra, Barcelona, Spain (online), 2021
- University of Bern, Switzerland, 2022
- Universitat Pompeu Fabra, Barcelona, Spain, 2022
- Protatonce Ltd., Athens, Greece, 2023
- Universitat Pompeu Fabra, Barcelona, Spain, 2023
- KU Leuven, Belgium, 2024

University of Surrey
Online

ONE WEEK COURSE INTRODUCTION TO GENOME WIDE ASSOCIATION STUDIES
2022

University of Oulu
Oulu, Finland

DEEP LEARNING MODULE
2021

- 5-credit masters in computer science module focused on deep learning with computer vision applications
- **Final Project:** A deep generative adversarial network for face generation from random input

Coursera
Online

MACHINE LEARNING AND DEEP LEARNING SPECIALISATIONS, ANDREW NG
2021

Committees and Memberships

International Society for the Study of the Lumbar Spine
San Francisco, USA

SOCIAL MEDIA COMMITTEE MEMBER
2023 - present

Osteopathic Foundation
London, England

GRANT REVIEWER
2022 - present

Disc4All Data Managment Board
Oulu, Finland

NORTHER FINLAND BIRTH COHORT 1966 DATA STEWARD
2021 - present

Advance Higher Education
Swansea, Wales

FELLOW (FHEA)
2018 - present

University College of Osteopathy Research Ethics Committee
London, England

COMMITTEE MEMBER
2012 - 2017, 2020 - present

First Disc4All Winter School
Oulu, Finland

EVENT ORGANISER
2021

Swansea University Academic Integrity Committee
Swansea, Wales

COLLEGE OF HUMAN AND HEALTH SCIENCES COMMITTEE MEMBER
2014 - 2017