Matthew David Blackledge PhD, MSc, BSc

PERSONAL DETAILS

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blackledgelab

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EDUCATION

Institute of Cancer Research
PhD in Medical Physics
2007-2011

Surrey University
MSc in Medical Physics
2006-2007 (Distiction)

Imperial College
BSc in Physics
2003-2006

PROGRAMMING

Languages
C • C++ • Objective-C
Python • Python-C API • IDL
LaTeX • R • HTML • Matlab

Administrative Tools
Unix • Conda • Jupyter
Git • Confluence • Jira

REFERENCES

Prof. Dow-Mu Koh
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PROFESSIONAL EXPERIENCE

Institute of Cancer Research
Postdoctoral Fellow | 2015-Present

- Leading on the development of **whole-body MRI radiomics** and advanced **statistical inference** approaches for assessing inter-lesion response heterogeneity in patients receiving systemic therapies for advanced prostate cancer.
- Innovating **machine-learning** approaches to identify and monitor intra-lesion response heterogeneity in soft-tissue sarcoma treated with radiotherapy using multi-parametric imaging.
- Developing approaches to improve the accuracy and repeatability of quantitative MRI through new **model-fitting** paradigms.
- Pioneering new **in-silico** approaches for validation of imaging biomarkers using advanced **histological analyses** of preclinical cancer models.
- Steering and managing the development of new **regulatory approved software** for automatic response assessment of patients with metastatic cancer using whole-body MRI.

NIHR Postdoctoral Fellow | 2012-2015

- Developed novel **image segmentation** approaches for whole-body MRI and PET/CT in patients with advanced prostate cancer and lymphoma.
- Invented and implemented a new **software** platform (pyOsiriX) that accelerates prototyping of imaging research tools, and facilitates the interaction between imaging scientists and radiologists through a familiar image viewing platform.
- Led whole-body **MRI protocol development** and promoted its use within multi-center clinical trials.

Postdoctoral Researcher | 2011-2012

- Investigated **multi-modality imaging** (PET/MRI) for monitoring the response of Lymphoma to chemotherapy.
- Developed spatial **registration strategies** for sequential MRI and PET studies.

GRANTS

NIHR Career Development Fellowship | 2018-2021
Lead-applicant | £483,000 - (submitted; first round successful)

NIHR Invention for Innovation (i4i) award | 2017-2020
Co-applicant | £1,201,674

NIHR Postdoctoral Fellowship | 2012-2015
Lead-applicant | £242,628

AWARDS AND PRIZES

- First prize for presentation to the MR of Cancer Study Group at the annual meeting of the International Society for Magnetic Resonance in Medicine (ISMRM) in 2017.
- Sylvia Lawler prize from the Royal Society of Medicine in 2013 for development of innovative imaging methodologies for quantification response heterogeneity from whole-body MRI.
- Two summa cum laude awards at the ISMRM annual meetings in 2013 and 2016.
- Certificate of merit award at the annual meeting of the European Society for Magnetic Resonance in Medicine and Biology (ESMRMB) in 2008.

LEADERSHIP AND MENTORING

- Recruitment and management of staff involved in the NIHR I4I award, including oversight of software development and ensuring final regulatory approval.
- Management of grant funds and resources, both within personal fellowships and project awards.
- Regular delivery of timely updates to funding bodies highlighting the progress of my research; authorship of final reports and lay summaries to research ethics committees to convey clinical trial results.
- Chair regular meetings to ensure that research project milestones are reached on time.
- Co-supervision of two PhD students: providing mentorship on (i) the statistical modelling and image analysis of noisy MRI data, and (ii) machine-learning approaches for advanced analysis of histopathology.
- Hosted and supervised a summer-student through funding awarded by the Institute of Cancer Research (ICR) to investigate novel methodologies for atlas-based segmentation of multi-modal whole-body imaging data (MRI and CT).
- Mentored a one-year placement for an international postgraduate student exploring spatial registration methods between PET-CT and MRI.

SCIENTIFIC OUTREACH

- Invited key speaker at prominent international and national scientific meetings.
- Principle lecturer at the annual mathematics and imaging course at the Royal Marsden Hospital (RMH) and ICR (interactive slides: https://github.com/mattblackledge/mathematicsofimaging).
- Run and deliver an annual course on the use of LaTeX for graduate students within the ICR.
- Invited member of the scientific editorial board for European Radiology.
- Regular peer-reviewer for a number of relevant journals (including European Radiology and Magnetic Resonance in Medicine).
- Invited as principle lecturer for a course on the physics of MRI at the Centre for Advanced Studies in Warsaw, Poland.
- Co-written book chapters on the on the implementation and optimisation of whole-body MRI in oncology.
- Acted as a STEM (Science, Technology, Engineering and Mathematics) ambassador to promote careers in science.

RESEARCH COLLABORATIONS

- Continually collaborate with clinical staff at the RMH to develop protocols for clinical trials.
- Develop optimised MRI protocols at institutions across the UK to support multi-centre clinical imaging trials.
- Spearheading a collaboration with University College London (UCL) to investigate the use of deep learning for automatic MRI image quality control.
- Member of the European Diffusion Weighted Imaging initiative in Myeloma (EDWIM), acting as leading MR-physicist to develop imaging recommendations that promote standardization of acquisition and reporting of WB-MRI in myeloma.
- Established a collaboration with Norwegian University of Science and Technology (NTNU) to investigate the use of advanced histopathological analysis for MRI biomarker validation.
- Jointly established a collaboration with an industrial partner (Mint Medical GmbH) to support software development to a commercial standard.

PUBLICATIONS

PATENTS

INTERNATIONAL CONFERENCES

I have contributed to 44 peer-reviewed articles accepted for presentation at international conferences. Those for which I was a first or senior author are listed below.