Theodore **Barfoot**

Clinical Scientist | MRI Physics

@ theo.barfoot@gmail.com London, UK
+44 7530 282627 linkedin.com
HCPC Professional Registration

Focusing on dataset curation, I have worked as part of a multidisciplinary team on the Machine Learning in Myeloma Response (MALIMAR) clinical trial at The Royal Marsden Hospital. Working with radiologists, radiographers, oncologists and machine learning experts, I have gained significant experience with the technical aspects of artificial intelligence, domain specific knowledge in medicine, dataset curation and the regulatory framework in which it must be conducted. With over 4 years of experience working for the NHS in medical science I believe my skillset places me firmly in a position to act as an effective bridge between the wealth of data within the healthcare sector and the machine learning experts able to derive powerful predictive models from it.

Professional Experience

Current – September 2018 | **Clinical Scientist - MRI Physics and Data Science, The Royal Marsdenv Hospital, NHS**

- Clinical Scientist specialising in dataset curation for deep learning in radiology
- Working on NIHR funded clinical trail Machine Learning in Myeloma Response (MALIMAR)
- Working in multi-disciplinary team in both clinical and academic environments at The Royal Marsden Hospital, Imperial College Healthcare Trust, Institute of Cancer Research and Imperial College London
- Responsible for collection, allocation, cleaning, labelling, segmentation and delivery of 500+ Whole Body MRI scans to machine learning experts at Imperial College
- Experience with data extraction from Picture Archiving and Communication Systems (PACS) and Electronic Patient Records (EPR)
- Experience with machine learning and deep learning in Python
- Developed automated data curation pipeline in Python
- Developed tools to facilitate radiologists segmenting and labeling MRI scans for disease classification

Data Science | Data Curation | Python | Git | DICOM | Image Processing | XNAT | Data Governance | MRI Physics

September 2018 – September 2015 | **Trainee Clinical Scientist - Medical Physics, King's College Hospital, NHS**

- Scientist Training Programme with NHS in Medical Physics
- Placements in radiation safety, radiotherapy physics, imaging with ionising radiation and imaging with non-ionising radiation
- Worked at King's College Hospital, Guy's and St Thomas' Hospital and The Royal Marsden Hospital
- Specialised in magnetic resonance physics and ultrasound physics

Medical Physics | MRI | US | CT | SPECT | PET | x-ray | radiotherapy | Data Governance | MATLAB

Education

July 2018 – September 2015 | **MSc Clinical Science (Medical Physics), King's College London** - Distinction (1st)

- Radiation Physics for Imaging and Radiotherapy - 74%
- Healthcare Science and Research Methods - 91%
- Medical Imaging with Non-Ionising Radiation - 72%
- Further Medical Imaging with Non-Ionising Radiation -72%
- Research Project | Motion Correct for T1-Mapping - 70%

July 2015 – September 2011 | **MEng Biomedical Engineering, Imperial College London** - Upper Second (2:1)

- Final Year Project : "Assessment of collagen sheets as porous elastomeric membranes for use in microfluidic flow stretch chips to characterise endothelial cell transport properties - 67%

Scientific Communications

ESMRMB	**The European Society for Magnetic Resonance in Medicine and Biology - Rotterdam 2019** Abstract accepted with poster and presentation on ”Big Data Curation for Deep Learning in MRI”
BC-ISMRM	**British Chapter of The International Society for Magnetic Resonance in Medicine - Sheffield 2019** Abstract accepted with poster on ”Big Data Curation for Deep Learning in MRI”
IPEM	**Institute of Physics and Engineering in Medicine - MRI Safety Update - York 2017** Presentation on Comparison of MRI Screening Policies for Metallic Intra-Orbital Foreign Bodies

Speaking Engagements

2020	European Society of Radiology (ESR) - ESR Connect Season 2 - Educational web video series on the use of Artifical Intelligence in Radiology. Presenting ”Theo’s Technical Top Tips for Machine Learning in Radiology” about dataset identification, ethics, GDPR, anonymisation, curation, cleaning, storage, splitting, labelling and clinical validation, for a radiologist audience. Pre-recording in Vienna in November 2019 and live show to be broadcast in February 2020.
2019	Delivering lecture titled ”Artificial Intelligence : Past Present and Prognosis” for The Institute of Engineering and Technology in Malvern in December 2019.
2019	Chaired two sessions at The European Society of Magnetic Resonance in Medicine and Biology conference in Rotterdam in 2019 on ”Clinical Impacts and Needs of Machine Learning” and ”Segmentation and Classification by Machine Learning”.
2015	Delivered Dragon’s Den style power pitch to board of investors at finals of McKinsey Venture Academy

Extracurricular

- Recently submerged into the world of underwater hockey
- Vocal Percussionist (Beatboxer) for Imperial College a cappella group The Techtonics from 2013-2018.
  Winners of the International Championships of Collegiate A Cappella 2016 Finals in New York.
  Toured with group to the West Coast, East Coast and Deep South of USA as well as Hong Kong.
- Captain of swim team at highschool, qualified swimming teacher and life guard.
- Keen snowboarder, found enjoying the Alps each year
- Classical guitar player

References

Available upon request