Emma Thomson

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Employment History

2018 **Trainee Physicist** National Coordinating Centre for the Physics of Mammography, National Health Service.

Education

2019 – **Ph.D., Magnetic Resonance Physics** University College London
Thesis title: *Quantifying Cerebral Blood Volume and Intravascular Water Residence Time Using Non-Contrast Magnetic Resonance Fingerprinting*

2019 – 2020 **M.Res.Medical Imaging and Biomedical Engineering** University College London
Thesis title: *Magnetic Resonance Fingerprinting Approach to the Measurement of Blood Volume and Water Exchange Across the Blood Brain Barrier.*

2015 – 2019 **B.Sc.Physics** University of Surrey
Thesis title: *Effect of glandularity on the detection of simulated cancers in planar, tomosynthesis, and synthetic 2D imaging of the breast using a hybrid virtual clinical trial.*

Research Publications

Journal Publications

1. **Thomson**, **E.**, Powell, E., Wheeler-Kingshott, C. G. A. M., & Parker, G. J. M. (2023b). Quantification of water exchange across the blood-brain barrier using non-contrast mr fingerprinting. *Preprint. bioRxiv*, 2023.11.15.567199. doi:https://doi.org/10.1101/2023.11.15.567199
2. Mackenzie, A., **Thomson**, **E.**, Mitchell, M., Elangovan, P., van Ongeval, C., Cockmartin, L., … Young, K. (2022). Virtual clinical trial to compare cancer detection using combinations of 2d mammography, digital breast tomosynthesis and synthetic 2d imaging. *European Radiology*, 806–814. doi:https://doi.org/10.1007/s00330-021-08197-x
3. Mackenzie, A., Kaur, S., **Thomson**, **E.**, Mitchell, M., Elangovan, P., Warren, L. M., … Young, K. (2021). Effect of glandularity on the detection of simulated cancers in planar, tomosynthesis, and synthetic 2d imaging of the breast using a hybrid virtual clinical trial. *Medial Physics*, 6859–6868. doi:https://doi.org/10.1002/mp.15216
4. Mackenzie, A., **Thomson**, **E.**, Elangovan, P., van Ongeval, C., Cockmartin, L., Warren, L. M., … Young, K. (2019). An observer study to assess the detection of calcification clusters using 2d mammography, digital breast tomosynthesis, and synthetic 2d imaging. *Proc. SPIE 10952, Medical Imaging 2019: Image Perception, Observer Performance, and Technology Assessment*. doi:https://doi.org/10.1117/12.2506895

Conference Abstracts

1. **Thomson**, **E.**, Powell, E., Wheeler-Kingshott, C. G. A. M., & Parker, G. J. M. (2023a). A method for detection of subtle blood-brain barrier disruption using non-contrast mr fingerprinting. In *Ismrm & ismrt 32nd annual meeting [power pitch]*.
2. **Thomson**, **E.**, Wheeler-Kingshott, C. G. A. M., & Parker, G. J. M. (2023). Independent component analysis for noise removal in mr fingerprinting. In *Ismrm & ismrt 32nd annual meeting [poster]*.

3. **Thomson**, **E.**, Powell, E., Wheeler-Kingshott, C. G. A. M., & Parker, G. J. M. (2022a). Quantification of cerebral blood volume and intravascular water residence time using non-contrast mr fingerprinting. In *British and irish chapter of ismrm symposium [poster]*.

4. **Thomson**, **E.**, Powell, E., Wheeler-Kingshott, C. G. A. M., & Parker, G. J. M. (2022b). Feasibility of non-contrast mr fingerprinting for the quantification of cerebral blood volume and blood-brain barrier water exchange. In *Joint ismrm-esmrmb & ismrt 31st annual meeting [poster]*.

5. **Thomson**, **E.**, Powell, E., Wheeler-Kingshott, C. G. A. M., & Parker, G. J. M. (2022c). Feasibility of quantifying of vb, tb, t1b ,t1e and b1+ simultaneously using non-contrast mr fingerprinting. In *British and irish chapter of ismrm post graduate symposium [poster]*.

6. **Thomson**, **E.**, Wheeler-Kingshott, C. G. A. M., & Parker, G. J. M. (2021). Feasibility of using non-contrast spoiled gradient echo magnetic resonance fingerprinting for the quantification of cerebral blood volume. In *British and irish chapter of ismrm symposium [poster]*.

Skills

Languages	English (native), Danish (A2)
Coding	Python (proficient), MATLAB (proficient) , Swift, C++, experience with high-performance computing
Web Development	HTML, CSS
Miscellaneous	Academic research, LaTeX typesetting and publishing, MetaPost.

Awards and Achievements

2021	**Educational Stipend Award**, ISMRM and ISMRT Annual Meeting and Exhibition
	1st Place Neuroscience Poster, British and Irish Chapter of ISMRM Postgraduate Symposium
2022	**Educational Stipend Award**, ISMRM and ISMRT Annual Meeting and Exhibition
	1st Place Power Pitch, British and Irish Chapter of ISMRM Postgraduate Symposium
	1st Place Poster, British and Irish Chapter of ISMRM Symposium
2023	**Educational Stipend Award**, ISMRM and ISMRT Annual Meeting and Exhibition
	ISMRM Magna Cum Laude Merit Award, ISMRM and ISMRT Annual Meeting and Exhibition

Appointments

2021-2023	BIC-ISMRM Newsletter Editorial Board
2022	PhD Student Mentor
2022-2023	BIC-ISMRM PG Symposium Organising Committee
	i4Health Centre for Doctoral Training PhD representative
	Co-Supervisor for Undergraduate Final Project Project title: *Optimisation of a Machine Learning Algorithm for Dictionary-Free Magnetic Resonance Fingerprinting of the Blood-Brain Barrier*
2023	Abstract reviewer for the British and Irish Chapter of ISMRM Postgraduate Symposium
	Contributed to reviews for Magnetic Resonance in Medicine

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Certificates

2021 UCL Medical Image Computing Summer School (MedICSS)

Public Engagement Work

2021 **Bloomsbury Festival**
Developed Apple App to teach pre teens the benefits of differing image contrasts/MRI
Two day engagement with primary school children and the general public to provide information on medical imaging with focus on MRI.

2022 **Bloomsbury Festival**
Developed AR app to augment breathing lungs of correct anatomical size onto people passing our stand in order to teach about organ placement
Three day engagement with primary school children and the general public to provide information on medical imaging with focus on MRI and radiotherapy.

References

Available on Request