

JO SCHLEMPER

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SUMMARY

I currently serve as a **Fellow** and lead AI efforts at Hyperfine, where I have delivered multiple FDA-cleared, deep learning-based products, including one built on state-of-the-art MRI reconstruction techniques developed during my PhD research at Imperial College London. Over the course of my career, I have made significant contributions to **machine learning and medical image analysis**, with over **30** publications collectively cited more than **15,000** times, and have co-patented **7+** key innovations and trade secrets that are now embedded in deployed products.

PROFESSIONAL EXPERIENCE

Fellow, AI - Hyperfine , CA, USA	Mar 2025 - Present
Tech Lead, AI Image Quality	Oct 2022 - Mar 2025
Staff AI Scientist	Jan 2022 - Oct 2022
Senior Deep Learning Scientist	Nov 2019 - Dec 2021
Deep Learning Intern	Nov 2018 - Mar 2019

- Spearheaded the invention, design, development and evaluation of [OptiveAI™](#), *delivering a substantial leap in image quality for ultra low-field MRI*.
- Drove key contributions of *8 FDA 510(k) clearances* for [AI-powered Swoop MRI®](#) and [BrainInsight](#), an AI measurement tools, such as designing, developing, and evaluating the models, and devising and executing verification and validation protocols for the regulatory requirements.
- Conduct research and develop key innovations in: (1) supervised/self-supervised physics-driven, model-based MR image reconstruction, (2) MR motion correction, (3) supervised/unsupervised image denoising, (4) super-resolution, (5) supervised/unsupervised, uni/multimodal, affine/deformable image registration, (6) MR sensor data denoising, (7) simulation-based model training frameworks, (8) image classification, (9) quality assessment, (10) domain-invariant anatomical segmentation.
- Mentor a team of senior scientists and interns to help them navigate the R&D process for projects including signal processing, sensor-data denoising, anatomical segmentation, and self-supervised learning.

Machine Learning Research Intern - *Twitter, London, UK* Jun - Sept 2018

- Investigated learned index structure and approximate nearest neighbour systems to improve real-time content-based image retrieval system. [\(link\)](#)

Software Engineer Intern - *Moore Europe Capital Management, London, UK* Jun - Oct 2014

- Worked on front-end projects for their quasi real-time analytic infrastructures for financial analysis and econometrics. The technology involved JavaScript and React framework.

SELECTED PUBLICATIONS

B. Zhou, **J. Schlemper**, et al., “DSFormer: A Dual-domain Self-supervised Transformer for Accelerated Multi-contrast MRI Reconstruction”, under review. [\(link\)](#)

N. Dey, **J. Schlemper**, et al., “ContraReg: Contrastive Learning of Multi-modality Unsupervised Deformable Image Registration”, under review.

K. Hammernik, **J. Schlemper**, et al., “Systematic evaluation of iterative deep neural networks for fast parallel MRI reconstruction with sensitivity-weighted coil combination.” *Magnetic Resonance in Medicine*, Jun 2021. [\(link\)](#)

J. Schlemper*, O. Oktay*, et al., “Attention Gated Networks: Learning to Leverage Salient Regions in Medical Images”. *Medical Image Analysis*, 2019. [\(link\)](#)

Jinming Duan*, **J. Schlemper*** et al., “VS-Net: Variable Splitting Network for Accelerated Parallel MRI Reconstruction”, MICCAI 2019 (*Oral presentation*). ([link](#))

J. Schlemper et al., “Cardiac MR Segmentation from Undersampled k-space Using Deep Latent Representation Learning”, MICCAI, 2018 (*Spotlight Oral, Student Travel Award*). ([link](#))

J. Schlemper, et al., “Bayesian Deep Learning for Accelerated MR Image Reconstruction”. MLMIR, 2018. ([link](#))

J. Schlemper, et al., “A Deep Cascade of Convolutional Neural Networks for Dynamic MR Image Reconstruction”. IEEE TMI, Oct 2017. ([link](#))

SELECTED PATENTS

J. Schlemper et al., “Deep learning techniques for magnetic resonance image reconstruction”, US Patent App. 16/524,598, US Patent App. 16/524,598. ([link](#))

J. Schlemper et al., “Deep learning techniques for generating magnetic resonance images from spatial frequency data”, US Patent App. 16/817,370 ([link](#))

C. Lazarus, **J. Schlemper** et al., “Deep learning techniques for suppressing artefacts in magnetic resonance images”, US Patent App. 16/541,511 ([link](#))

COMPETITIONS

fastMRI Image Reconstruction Challenge 2019

- 34 teams participated in the challenge of developing state-of-the-art MR image reconstruction techniques for large-scale knee MR dataset.
- Placed **2nd**, **3rd** and **5th** in “multicoil 4x”, “multicoil 8x” and “singlecoil 4x” tracks respectively. ([link](#))

Multi-sequence Cardiac MR Segmentation Challenge (STACOM2019)

- Placed **1st** in the challenge of developing state-of-the-art techniques for segmenting myocardium provided limited data in multi-contrast. ([link](#))

EDUCATION

PhD, Computer Science - Imperial College London, UK 2015 - 2019

- Thesis: *Deep Learning for Fast and Robust Medical Image Reconstruction and Analysis* ([link](#))
- Supervisors: Prof. Daniel Rueckert and Prof. Jo Hajnal.
- Specialisation: Deep Learning, Convolutional & Recurrent Neural Networks, Inverse Problems, Image Segmentation, Compressed Sensing, Magnetic Resonance Imaging.

MEng, Mathematics and Computer Science - Imperial College London, UK 2011 - 2015

- *First Class Honours*, Dean’s List in year 2 (top 3 of the class)
- Thesis: *Deep Belief Network: A step towards modelling Attachment Theory*
- Courses: Machine Learning, Computer Vision, Medical Image Processing, Software Engineering (Algorithm, Design, Practice, Operating Systems, Database), Mathematics (Advanced Algebra, Statistics, Calculus and Analysis)

ACADEMIC EXPERIENCE

Reviewer 2017 - Present

- Active reviewer for IEEE Transactions on Medical Imaging, Medical Image Analysis, Magnetic Resonance in Medicine, NeuroImage, Medical Physics, IEEE DCC, IEEE TCS, etc..

Organising Committee Dec 2017 - Dec 2018

ISMRM Workshop on Machine Learning, Alisomar, CA, USA, 14-17th Mar. 2018

ISMRM Workshop on Machine Learning II, Capital Hilton, DC, USA, 25-28 Oct. 2018.

- Participated in organising ISMRM machine learning workshops. Roles included co-chairing one of the oral presentations, reviewing abstracts, and scheduling.

TEACHING EXPERIENCE

Graduate Teaching Assistant - *Dyson School of Design Engineering, Imperial College London* April 2018

- Computational Intelligence: designed part of the coursework, helped lead the tutorial and practical sessions.

Mathematical Methods Tutor - *Imperial College London* Sep - Dec 2016, 2017

- Provided weekly tutoring for 1st year Computing students. Topics included analysis and linear algebra.

SKILL

Programming	Proficient in Python Competent in Matlab, JavaScript, HTML/CSS, Java, and SQL Familiar with C/C++, Haskell, Prolog, PHP and Assembly.
Libraries	Deep learning frameworks (TensorFlow, PyTorch), Scikit-learn, OpenCV, CUDA
Dev Tools	Emacs, VS Code/PyCharm, Git, CircleCI, Docker, AWS
OS	Mac OSX, Linux (Ubuntu).

LEADERSHIP

President - *Funkology, a hip hop dance society at Imperial College London* 2014 - 2015

- Funkology is a society of more than 100 students and dancers. Responsibilities included financing, annual budgeting, organising events including, weekly classes, workshops with professional UK dancers and socials.
- Crew Leader of the advanced group. Awarded 1st place at Edinburgh 2016/17, 2nd Place Royal Holloway 2013/14.

Publicity Officer - *Funkology* 2012 - 2014

- Responsibilities included development and maintenance of the society website, video editing and any other technology and publicity related tasks.

PASSIONS (other than research!)

- Rock climbing and running.
- Dancing and choreographing (awarded best male dancer at Edinburgh Dance Competition in 2017).
- Board games, puzzles and maths.