

Dr. rer. nat. Ben Glocker
Professor in Machine Learning for Imaging

Imperial College London, Department of Computing
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ACADEMIC & INDUSTRY POSITIONS

Professor Department of Computing Imperial College London, UK	since 2022
Head of ML Research Kheiron Medical Technologies, UK	since 2021
Reader (eq. Associate Professor) Department of Computing Imperial College London, UK	2019 – 2022
Adviser - Medical Image Analysis HeartFlow, UK	since 2018
Visiting Researcher Healthcare Intelligence Microsoft Research Cambridge, UK	2019 – 2021
Senior Lecturer (eq. Assistant Professor) Department of Computing Imperial College London, UK	2013-2019 Senior from 2017
Postdoctoral Researcher Machine Learning and Perception Group Microsoft Research, Cambridge, UK	2010 – 2013
Research Assistant Computer Aided Medical Procedures Technische Universitaet Muenchen, Germany	2006 – 2010
Visiting Researcher Laboratoire MAS Ecole Centrale Paris, France	2006 – 2010

EDUCATION

Doctoral Degree in Computer Science (Summa Cum Laude) Technische Universitaet Muenchen, Germany	2011
Diploma in Computer Science (Distinction) Technische Universitaet Muenchen, Germany Minor Subject: Theoretical Medicine	2006

FELLOWSHIPS

Microsoft Research Fellow Darwin College University of Cambridge, UK	2010 – 2012
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AWARDS / HONOURS

MICCAI UNSURE Workshop Best Paper Award	2021
MICCAI Dart Workshop Best Paper Award – Runner-Up	2021
Imperial President’s Award for Outstanding Research Team	2019
Philips Impact Award – MIDL 2018	2018
Member of the World Economic Forum’s Young Scientists Community	2016
NVIDIA Global Impact Award – Honorable Mention	2016
ERCIM Cor Baayen Award – Honorable Mention	2013
Medical Image Analysis – MICCAI Best Paper Award	2013
Werner von Siemens Excellence Award	2007
Francois Erbsmann Prize	2007

BRIEF BIO

Ben Glocker is a Professor in Machine Learning for Imaging at the Department of Computing at Imperial College London where he co-leads the Biomedical Image Analysis Group. He also leads the HeartFlow-Imperial Research Team and is Head of ML Research at Kheiron Medical Technologies. He holds a PhD from TU Munich and was a postdoc at Microsoft and a Research Fellow at the University of Cambridge. His research is at the intersection of medical imaging and artificial intelligence aiming to build safe and ethical computational tools for improving image-based detection and diagnosis of disease. He has received several awards including a Philips Impact Award, a Medical Image Analysis – MICCAI Best Paper Award, and the Francois Erbsmann Prize. He is a member of the Young Scientists Community of the World Economic Forum and a member of the AI Task Group of the UK National Screening Committee advising the Government on questions around clinical deployment of AI for screening programmes. He was awarded an ERC Starting Grant in 2017.

PUBLICATIONS

Citations: >24,000; h-index: 64 (last accessed 01 September 2022)
List of publications: <http://wp.doc.ic.ac.uk/bglocker/publications/>
Google Scholar: https://scholar.google.co.uk/citations?user=g_HtjLIAAAAJ
dblp: <https://dblp.uni-trier.de/pers/hd/g/Glocker:Ben>

Five recent publications

Melanie Bernhardt, Charles Jones, Ben Glocker, [Potential sources of dataset bias complicate investigation of underdiagnosis by machine learning algorithms](#), *Nature Medicine*, 2022

Xiaoxuan Liu, Ben Glocker, Melissa M McCradden, Marzyeh Ghassemi, Alastair K Denniston, Lauren Oakden-Rayner, [The medical algorithmic audit](#), *The Lancet Digital Health*, 2022

Daniel C. Castro, Ian Walker, Ben Glocker, [Causality matters in medical imaging](#), *Nature Communications*, 2020

Miguel Monteiro, Loïc Le Folgoc, Daniel Coelho de Castro, Nick Pawlowski, Bernardo Marques, Konstantinos Kamnitsas, Mark van der Wilk, Ben Glocker, [Stochastic Segmentation Networks: Modelling Spatially Correlated Aleatoric Uncertainty](#), *Advances in Neural Information Processing Systems (NeurIPS)*, 2020

Nick Pawlowski, Daniel C. Castro, Ben Glocker, [Deep Structural Causal Models for Tractable Counterfactual Inference](#), *Advances in Neural Information Processing Systems (NeurIPS)*, 2020

Editorial Board

Journal on Medical Image Analysis
Journal on Image and Vision Computing

Steering Committee

WEF Young Scientists' Code of Ethics

Scientific Lead

HeartFlow-Imperial Research Team

Scientific Advisor

Kheiron Medical Technologies
Definiens (2017 – 2019)

Conference Chair

International Conference on Medical Imaging with Deep Learning 2019

Program Committee & Area Chair

ECR 2020 Imaging Informatics Scientific Subcommittee
MICCAI 2013/15/16; SPIE Medical Imaging 2015-18/20
WBIR 2014/20; ISVC Special Track 2009

Co-Organizer

MICCAI 2020 Tutorial on Causality in Medical Image Computing
IPAM Workshop on Deep Learning and Medical Applications 2020
{U|I|K}CL Bio-Imaging Symposia
Church of England Symposium on Social and Ethical Implications of AI 2018
MICCAI 2018 Tutorial on Deep Learning for Medical Imaging
Workshop Medical Imaging meets NeurIPS 2017-2021
British Machine Vision Conference 2017
MedIAN CodeFest 2017 – Medical Imaging Hackathon
International Workshop on Biomedical Image Registration 2016
BIH 2015 Symposium on Clinical Applications of Machine Learning in Neuroimaging
MICCAI Workshop & Challenge CSI 2014-16, mTOP 2016, MSKI 2017
ISBI 2015 Special Session on Graphical Models for Biomedical Image Analysis
MICCAI 2010 Tutorial on Intensity-based Deformable Registration
1st Russian-Bavarian Conference on Biomedical Engineering 2005

Departmental and College Activities

Champion for Public Engagement (2017-2020)
CRUK Imperial Centre Development Fund Committee
Council of Operations of the Leica and Imperial College Imaging Hub

Affiliations / Expert Groups

Cancer Research UK Early Detection & Diagnosis Research Committee
AI Task Group of the UK National Screening Committee
World Economic Forum's Young Scientists Community
UKRI Centre for Doctoral Training in AI for Healthcare
EPSRC Centre for Doctoral Training in Smart Medical Imaging
EPSRC Centre for Doctoral Training in Neurotechnology for Life and Health

Guest Editor

Medical Image Analysis Special Issue on Medical Imaging with Deep Learning 2019
Medical Image Analysis Special Issue on Discrete Graphical Models in Biomedical Image Analysis
International Journal of Computer Vision Special Issue BMVC 2017

Society Memberships

MICCAI Society, European Society of Medical Imaging Informatics, British Machine Vision Association,
European Society of Radiology, Association for Computing Machinery

Journal & Conference Reviewer

IEEE T-PAMI, TMI, TIP, TBME, Springer Nature, IJCV, Elsevier MedIA, Brain, CVIU, IMAVIS, Annals of Biomedical Engineering, MICCAI, IPMI, NeurIPS, ICLR, CVPR, ICCV, ECCV, ISBI, SPIE

Funding Body Reviewer

European Research Council, Research Council UK, Engineering and Physical Sciences Research Council (UK), The Wellcome Trust (UK), Technology Foundation STW (NL), Action Medical Research (UK)

TEACHING

Machine Learning for Imaging (CO416), since 2019
Medical Image Computing (CO407H), 2014 - 2017
Algorithms (CO202), 2014 - 2018
More details on: <http://wp.doc.ic.ac.uk/bglocker/teaching/>

PHD STUDENTS

Current:

Melanie Bernhardt, 1st Supervisor, started Oct 2021
Avinash Kori, 2nd Supervisor, started Oct 2021
Charles Jones, 1st Supervisor, started Oct 2021
Nairouz Shehata, 1st Supervisor, started Oct 2020
Theo Barfoot, 1st Supervisor, started Oct 2021
Margarete Kattau, Co-Supervisor, started Oct 2020
Ainkaran Santhirasekaram, 2nd Supervisor, started Oct 2019
Dmitrii Usynin, 2nd Supervisor, started Oct 2020
Margherita Rosnati, 1st Supervisor, started Oct 2019
James Batten, 1st Supervisor, started Oct 2019
Vassilis Baltatzis, 2nd Supervisor, started Oct 2018
Zeju Li, 1st Supervisor, started Oct 2018
Miguel Monteiro, 1st Supervisor, started Oct 2018
Ian Walker, 1st Supervisor, started Oct 2016
Sebastian Popescu, 2nd Supervisor, since Oct 2017

Graduated:

Nick Pawlowski, 1st Supervisor, started Oct 2016 (graduated Nov 2021)
Daniel Coelho De Castro, 1st Supervisor, started Oct 2016 (graduated Dec 2020)
Robert Robinson, 1st Supervisor, started Oct 2016 (graduated July 2020)
Konstantinos Kamnitsas, 1st Supervisor, started Oct 2014 (graduated November 2019)
Matthew Lee, 1st Supervisor, started Oct 2014 (graduated September 2019)
Vanya Valindria, 2nd Supervisor, started Apr 2015 (graduated March 2019)
Amir Alansary, 2nd Supervisor, started Oct 2014 (graduated Jan 2019)
Fahdi Kanavati, 2nd Supervisor, started Oct 2013 (graduated Dec 2017)

PATENTS

Modelling a Three-Dimensional Space Pub. No. WO2016189274

Tracking using Sensor Data Pub. No. US2015347846

Camera/Object Pose from Predicted Coordinates Pub. No. US2014241617

Method for Combining Images and Magnetic Resonance Scanner Pub. No. US2010067762

System and Method for Dense Image Registration using Markov Random Fields and Efficient Linear Programming Pub. No. US2009046951

INVITED TALKS & KEYNOTES (LAST 5 YEARS)

AI for Doctors Workshop Safety nets for clinical deployment of medical imaging AI Munich, June 24	2022
CVPR Medical Computer Vision Workshop 2022 Safety nets in medical imaging AI Hybrid, June 19	2022
Responsible AI Seminar Algorithmic encoding of protected characteristics Online, March 30	2022
STFC Cancer Diagnostic Network – Data Science Workshop AI for image-based detection of disease Online, October 5	2021
MICCAI Workshop on Predictive Intelligence in Medicine Deep Structural Causal Models for Counterfactual Inference Keynote, Online, October 1	2021
Artificial Intelligence in Future Health & Care: Regulation, Evaluation & Policies Safeguards in Medical Imaging AI Online, September 21	2021
MIUA 2021 Keynote Towards Safer AI in Medical Imaging Online, July 14	2021
Pitt-CMU MLxMed Seminar Towards Safer AI in Medical Imaging Online, June 23	2021
DoC Public Lecture Series Spot the Lesion London (online), May 27	2021
Hamlyn Winter School Causality in Medical Imaging London (online), December 2	2020
Artificial Intelligence in MRI AI in Radiology: The Story Behind the Data Virtual IPEM Workshop, November 18	2020
MICCAI Workshop on Domain Adaptation and Representation Transfer The Quest for Robust Machine Learning Keynote, Online, October 8	2020
Artificial Intelligence in Clinical Medical Imaging AI in Radiology: The Story Behind the Data sitem-insel (online), Bern, Switzerland, September 3	2020
ECR 2020: Artificial intelligence in radiology: the basics you need to know Training data for deep learning: what is needed? Online, July 15	2020
Data Science Seminar heidelberg.ai Uncertainty, causality and generalization: Attempts to improve predictive modelling DKFZ (online), Heidelberg, Germany, July 8	2020
BL.MIA Seminar Series Uncertainty, causality and generalization: Attempts to improve predictive modelling CSAIL MIT (online), Boston, USA, June 18	2020

ELLIS Health Workshop Causal considerations for machine learning in medical imaging Online, June 16	2020
ESR Connect – Reasons to do AI with Friends Episode 6 - The one with whole body MRI Broadley Studios, London, UK, Feb 19	2020
Machine Learning in Medicine: Virtual Seminar Series Causality matters in medical imaging Cornell (online), New York, USA, Feb 14	2020
IPAM Workshop: Deep Learning and Medical Applications Causality matters in medical imaging UCLA, Los Angeles, USA, Jan 30	2020
BIR/RCR Meeting: AI in Radiology 2020 Good and bad data in machine learning for imaging Cavendish Conference Centre, London, UK, Jan 23	2020
Machine Learning for Translational Medicine & Personalized Healthcare Spot-the-Lesion: Image- based disease detection with deep learning ITMAT Annual Workshop, Hammersmith Hospital, London, UK, Sep 19	2019
Horizon Europe: New Parliament, new Commission, new agenda Value-based healthcare: How technologies can improve care across the EU Science Business, Brussels, Belgium, Sep 10	2019
ConISyM – Converging Imaging and Systems Medicine Machine Learning for Imaging Castle Ringberg, Germany, May 23	2019
East Anglian Radiological Society Annual Meeting (EARS) Hopes and Hurdles for AI in Radiology St. Catharine’s College, University of Cambridge, UK, March 20	2019
European Commission Expert Group on Liability and New Technologies Artificial Intelligence in Healthcare European Commission, Brussels, Belgium, November 27	2018
Artificial Intelligence and Machine Learning in Clinical Imaging Research Machine Intelligence in Clinical Imaging Alan Turing Institute, London, UK, November 6th	2018
BIR Annual Congress Machine learning in medical imaging ETC Venues St. Paul’s, London, UK, November 2nd	2018
Imperial Global Science Policy Forum AI in Medical Imaging Imperial College London, UK, October 30	2018
Deep Learning in Healthcare Summit Deep Learning in Medical Imaging: Beyond Human-level Performance ETC Venues 155 Bishopsgate London, UK, September 21	2018
ISMRM 2018: Machine Learning for Magnetic Resonance in Medicine Deep Learning for MR Image Analysis Paris expo Porte de Versailles, Paris, France, June 20	2018
ECR 2018: Artificial intelligence and radiology: a perfect match? Deep learning for fully automatic segmentation of normal and pathological structures in medical images Austria Center Vienna, Austria, March 1	2018

ECR 2018: Artificial intelligence: a strategic view Machine learning for analysing medical images Austria Center Vienna, Austria, March 1	2018
Emerging Technologies in Medicine: Artificial Intelligence and Robotics Can we build a machine capable of interpreting medical scans with super-human performance? Universitaets-Klinik Essen, Germany, February 16	2018
EuSoMII Academy 2017: Game Changers in Radiology Unlocking patterns in medical images with AI Erasmus MC, Rotterdam, The Netherlands, November 18	2017
BMVA Symposium: Computer Vision in Cancer Brain Tumour Segmentation with Deep Neural Nets British Computer Society, London, UK, October 11	2017
Deep Learning in Healthcare Summit Deep Learning in Medical Imaging – Successes and Challenges LSO St Luke's, London, UK, February 28	2017

RESEARCH GRANTS

Innovate UK - AI Centre Grant

London Medical Imaging & Artificial Intelligence Centre for Value-Based Healthcare
Start 01/02/2019 End 30/04/22
PI: Prof Reza Razavi Co-I: Dr Ben Glocker (5% 2h/w)
Total value: £9,985,272

ERC Starting Grant, ERC-2017-STG-757173-MIRA

Next Generation Machine Intelligence for Medical Image Representation and Analysis
Start 01/02/2018 End 31/01/23
PI: Dr Ben Glocker (60% 22.5h/w)
Total value: €1,499,292

EPSRC Impact Acceleration Award, EP/R511547/1

DeepMedic – An Easy-to-Use Deep Learning Image Segmentation Tool for Clinical Research
Start 01/04/2019 End 31/03/2020
PI: Dr Ben Glocker
Total value: £68,193

HeartFlow-Imperial Research Collaboration

Start 01/12/2018 End 30/11/22
PI: Dr Ben Glocker (10% 4h/w)
Total value: -confidential-

EPSRC, EP/S013687/1

Automated Fetal and Neonatal Movement Assessment for Very Early Health Assessment
Start 01/04/2019 End 31/03/2022
PI: Dr Bernhard Kainz, Dr Tomoki Arichi, Co-I: Dr Ben Glocker (3% 1h/w)
Total value: £851,997

MRC/NIHR Efficacy and Mechanism Evaluation, 16/68/34

MACHINE Learning In Myeloma Response (MALIMAR study)
Start 01/07/2018 End 30/09/2021
PI: Prof Andrea Rockall, Co-I: Dr Ben Glocker (4% 1.5h/w)
Total value: £646,787

EPSRC, EP/R005982/1, EP/R005516/1

Efficient and Robust Assessment of Cardiovascular Disease Using Machine Learning and Ultrasound Imaging
Start 01/02/2018 End 31/07/2022
PI: Prof Daniel Rueckert, Dr Andy King, Co-I: Dr Ben Glocker (10% 4h/w)

Total value: £707,983

EPSRC Healthcare Impact Partnerships, EP/P023509/1

Intelligent and Personalised Risk Stratification and Early Diagnosis of Lung Cancer

Start 01/10/2017 End 31/03/2021

PI: Prof Julia Schnabel, Co-I: Dr Ben Glocker (5% 2h/w)

Total value: £947,232

EPSRC First Grant, EP/N023668/1

QuantifyTBI: A Machine Learning Approach to Automatic Segmentation and Quantification of TBI Lesions

Start 01/06/2016 End 31/05/2017

PI: Dr Ben Glocker (8% 3h/w)

Total value: £97,534

EPSRC NetworksPlus, EP/N026993/1

EPSRC-NIHR HTC Partnership Award 'Plus': Medical Image Analysis Network (MedIAN)

Start 01/10/2016 End 31/03/2020

PI: Prof Alison Noble, Co-I: Dr Ben Glocker (4% 1.5h/w)

Total value: £507,583

Dunhill Medical Trust, R401/0215

Optimising diagnosis and prediction of outcome of spinal decompression surgery in older people

Start 01/10/2015 End 30/09/2017

PI: Dr Paul Strutton, Co-I: Dr Ben Glocker (1% 0.5h/w)

Total value: £176,510

MRC Developmental Pathway Funding Scheme, MR/M025004/1

Repurposing Low-Cost Consumer Technology for Motion Correction in Dementia Neuroimaging

Start 01/07/2015 End 31/12/2016

PI: Prof Roger Gunn, Co-I: Dr Ben Glocker (3% 1h/w)

Total value: £255,501

MRC/NIHR Efficacy and Mechanism Evaluation, 13/122/01

MALIBO – Machine Learning in Whole Body Oncology

Start 01/02/2015 End 30/04/2020

PI: Prof Andrea Rockall, Co-I: Dr Ben Glocker (5% 2h/w)

Total value: £578,090

AMR Paediatric

Network Dysfunction following Paediatric Traumatic Brain Injury

Start 01/02/16 End 31/01/19

PI: Prof David Sharp, Co-I: Dr Ben Glocker (1% 0.5h/w)

Total value: £200,000

EPSRC Pathways to Impact

Fast and fully automatic segmentation of magnetic resonance images for computer-aided diagnosis

Start 01/09/2014 End 31/08/2015

PI: Prof Daniel Rueckert, Co-I: Dr Ben Glocker (3% 1h/w)

Total value: £53,770

Wellcome Trust ISSF Networks of Excellence

Augmented Reality and Advanced Visualization of Medical Images for Education, Training and Interventional Planning

Start 01/10/2014 End 30/09/2015

PI: Dr Ben Glocker (10% 4h/w)

Total value: £53,667

Wellcome Trust ISSF Networks of Excellence

Optimising diagnosis and prediction of outcome of spinal surgery using DTI and machine learning

Start 01/10/2014 End 30/09/2015

PI: Dr Paul Strutton, Co-I: Dr Ben Glocker (1% 0.5h/w)

Total value: £100,000