Karla L Miller

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Appointments

2016–2027	Wellcome Trust Senior Research Fellow WIN, University of Oxford
2015–Present	Associate Director WIN (formerly FMRIB), University of Oxford
2014–Present	Professor of Biomedical Engineering Nuffield Department of Clinical Neurosciences, University of Oxford
2011–2016	Wellcome Trust Career Development Fellow FMRIB Centre, University of Oxford
2007–2014	University Research Lecturer Nuffield Department of Clinical Neurosciences, University of Oxford
2006–2011	Royal Academy of Engineering / EPSRC Research Fellow FMRIB Centre, University of Oxford
2004–2006	Post-doctoral Researcher FMRIB Centre, University of Oxford

Education

2004	Doctor of Philosophy (PhD) Electrical Engineering, Stanford University *Thesis:* Novel methods for steady-state neuroimaging *Advisor:* Prof. John M. Pauly
2000	Master of Science Electrical Engineering, Stanford University
1998	Bachelor of Science (with highest honors) Computer Science, University of Illinois Urbana-Champaign

Research Interests

I develop novel methods for acquiring, reconstructing and analyzing MRI scans of the brain. Much of my work focuses on *population neuroimaging*, in particular co-leading brain imaging in the UK Biobank imaging study. My group is developing biophysically-principled methods for cross-scanner harmonisation, with a focus on UK Biobank.In a separate thread of research, we are developing novel measurements and biophysical models for *tissue microstructure* based on diffusion and magnetic susceptibility of tissue. We further aim to improve our understanding of MRI data in living subjects by comparing *scans of post-mortem brains* with microscopic imaging in the same tissue. Finally, we are using ultra-high-field MRI scanners and sophisticated signal processing methods for novel *advanced FMRI and diffusion imaging acquisitions*, primarily aimed at measures of brain connectivity.

Awards and Professional Activities

I have held various service positions in the MRI community, primarily at the Wellcome Centre for Integrative Neuroimaging (WIN, Oxford), the Nuffield Department of Clinical Neurosciences (NDCN, Oxford), and the International Society for Magnetic Resonance in Medicine (ISMRM). WIN (formerly known as FMRIB) is a research centre dedicated to MR neuroimaging, including large research groups focusing on both technology and neuroscience. The ISMRM is the leading society for developing MRI technology and furthering its application in clincial and biological science.

Oxford Committees

- Chair: *NDCN Equality Diversity & Inclusion Committee*, 2022–Present
- Member: *NDCN People & Culture Committee*, 2022–Present
- EDI Representative: *NDCN Graduate Studies Committee*, 2021–Present
- Member: *Oxford Medical Sciences Equality Diversity & Inclusion Steering Group*, 2021–2024
- Diversity & Inclusion Champion: *Oxford Neuroscience Strategy Board*, 2020–Present
- Chair: *WIN Equality Diversity & Inclusion Committee*, 2019–Present
- Member: *Oxford Recognition of Distinction Committee (awards Professor titles)*, 2019–Present
- Member: *Oxford Associate Professor & Research Lecturer Committee (awards titles)*, 2018–Present
- Board Member: *WIN Management Board*, 2016–Present
- Member: *NDCN Graduate Studies Committee*, 2014–2015
- Board Member: *FMRIB Directorate*, 2010–2016

External Committees and Boards

- Panelist: *Max Planck Group Leader Selection Panel, MPI for Biological Cybernetics*, 2022
- Reviewing Editor: *eLife*, 2021–Present
- Member: *ISMRM Nominating Committee*, 2021
- Board Member: *Center for Neuroscience Imaging Research (Sungkyunkwan), Review Board*, 2021
- Associate (Senior) Editor: *Magnetic Resonance in Medicine*, 2019–Present
- Vice Chair: *ISMRM Equity Diversity and Inclusion Task Force*, 2019–2021
- Board Member: *Harvard Connectome 2.0 Advisory Board*, 2019–Present
- Board Member: *Donders Institute Peer Review Committee*, 2019
- Member: *MRM Editor-in-Chief Selection Committee*, 2018–2019
- Board Member: *NeuroSpin Scientific Advisory Board*, 2017–Present
- Panelist: *EPSRC Healthcare Technologies Grant Panel*, 2017
- Board Member: *ISMRM Executive Board*, 2017–2018
- Chair: *ISMRM Annual Meeting Program Committee*, 2018

- Educational Chair: *ISMRM Annual Meeting Program Committee*, 2017
- Panel Member: *International Research Scholars Fellowship Committee (Wellcome/HHMI)*, 2017
- Board Member: *ISMRM Board of Trustees*, 2016–2018
- Panel Member: *Vienna Science and Technology Fund (WWTF)*, 2014
- Deputy (Handling) Editor: *Magnetic Resonance in Medicine*, 2013–2020
- Editorial Board: *NMR in Biomedicine*, 2013–2015
- Editorial Board: *Magnetic Resonance in Medicine*, 2012–Present
- Editorial Board: *NeuroImage*, 2011–2015
- Board Member: *ISMRM Board of Trustees*, 2011–2013
- Vice-Chair/Chair: *ISMRM Young Investigator Award Sub-committee*, 2011–2014
- Member: *ISMRM Annual Meeting Program Committee*, 2010–2012 (*FMRI Chair*, 2011–2012)
- Secretary: *ISMRM Current Issues in Brain Function Study Group*, 2009–2010
- Secretary: *ISMRM Diffusion-Perfusion Study Group*, 2008–2009

Conference & Workshop Activities

- Program Chair: *ISMRM-ESMRMB Joint Annual Meeting*, 2018
- Organizing Committee: *British Chapter of the ISMRM*, 2018
- Education Chair: *ISMRM Annual Meeting*, 2017
- Organizing Committee: *Biomedical and Astronomical Signal Processing (BASP) Workshop*, 2017
- Organizing Committee: *Whistler Workshop on Brain Function*, Whistler, 2016
- Organizing Committee: *Whistler Workshop on Brain Function*, Whistler, 2014
- Invited Participant: *MRC Brain Donation Workshop*, 2013
- Invited Participant: *EPSRC Dementia Scoping Workshop*, 2013
- Co-Organizer: *ISMRM Educational Courses (2 courses)*, Salt Lake City, 2013
- Co-Organizer: *ISMRM-OHBM Joint Virtual Workshop*, 2012
- Co-Organizer: *ISMRM Educational Courses (2 courses)*, Melbourne, 2012
- Organizer: *OHBM Morning Workshop: Susceptibility Imaging*, Quebec City, 2011
- Co-Organizer: *ISMRM Educational Courses (3 courses)*, Montreal, 2011
- Organizer: *ESMRMB Lectures on MRI: Diffusion Imaging (3-day course)*, Oxford, 2010
- Organizer: *UK Diffusion MRI Interest Group (day workshop)*, Oxford, 2007
- Member: *Grand Engineering Challenges Working Group*, Royal Academy of Engineering, 2007

Awards, Recognition and Keynotes

- Plenary Speaker, International Society for Magnetic Resonance in Medicine (ISMRM) 2022
- Keynote Speaker, International Society for MR Radiographers & Technologists 2022
- Shortlist, Vice-Chancellor's Diversity Awards, University of Oxford 2020
- Web of Science Highly-Cited Researchers 2019-21
- Plenary Speaker, European Society Magnetic Resonance in Medicine & Biology 2017
- Keynote Speaker, Organisation for Human Brain Mapping (OHBM) 2017
- Fellow, ISMRM 2016
- NIBIB New Horizons Lecture, ISMRM, 2014
- Outstanding Teacher Award, ISMRM, 2014
- Plenary Speaker, Experimental Nuclear Magnetic Resonance Conference 2012
- Teaching Excellence Award, University of Oxford, 2012
- Outstanding Teacher Award, ISMRM, 2012
- Research Fellowship (Non-Stipendiary), Worcester College, University of Oxford, 2006–2010

- Departmental Merit Award, Clinical Neurology, University of Oxford, 2007
- PEO Scholar Award (Visiting Research Assistant at Oxford), 2001–2002
- Stanford Graduate Fellowship (Full Scholarship), 1998–2002
- Computing Research Association Outstanding Undergraduate Award (1 of 2 nationally), 1998
- Hohn-Nash Award for Scientific Computing, Dept. of Computer Science, UIUC, 1998
- Spyglass Award for Academic Achievement, Dept. of Computer Science, UIUC, 1997

Mentorship

Sponsored fellows

- *Benjamin Tendler*, Sir Henry Wellcome Fellow, University of Oxford, 2021–2025.
- *Wenchuan Wu*, Royal Academy of Engineering Fellow, University of Oxford, 2019–2024.
- *Mark Chiew*, Royal Academy of Engineering Fellow, University of Oxford, 2017–2022.
- *Johanna Vannesjo*, Marie Curie Fellow, University of Oxford, 2015–2017.
- *Lior Weizman*, Coleman-Cohen Fellow, University of Oxford, 2015–2016.
- *Peter Koopmans*, Sir Henry Wellcome Fellow, University of Oxford, 2013–2016.

Post-doctoral researchers

- *Chaoyue Wang*, University of Oxford, 2021–Present.
- *Istvan Huszar*, University of Oxford, 2021–Present.
- *Amy Howard*, University of Oxford, 2020–Present.
- *Aurea Bach-Martins*, University of Oxford, 2019–Present.
- *Benjamin Tendler*, University of Oxford, 2017–2021.
- *Jeroen Mollink*, University of Oxford and Radboud University, 2018–2020.
- *Wenchuan Wu*, University of Oxford, 2017–2019.
- *Nadine Graedel*, University of Oxford, 2016–2017.
- *Johanna Vannesjo*, University of Oxford, 2014–2015; 2017–2018.
- *Michiel Kleinnijenhuis*, University of Oxford, 2013–2018.
- *Mark Chiew*, University of Oxford, 2012–2017.
- *Sean Foxley*, University of Oxford, 2011–2016.
- *Jennifer McNab*, University of Oxford, 2008–2009.
- *Daniel Gallichan*, University of Oxford, 2007–2008.

Doctoral students

- *Ziyu Li*, University of Oxford, 2021–Present.
- *Silei Zhu*, University of Oxford, 2021–Present.
- *Daniel Kor*, University of Oxford, 2019–Present.
- *Cristiana Tisca*, University of Oxford, 2019–Present.
- *Teddy Cai*, University of Oxford, 2021–Present.
- *Chaoyue Wang*, University of Oxford, 2017–2021.
- *Amy Howard*, University of Oxford, 2017–2020.
- *Istvan Huszar*, University of Oxford, 2017–2020.
- *Harry Mason*, University of Oxford, 2016–2020.
- *Feng Qi*, University of Oxford, 2015–2019.
- *Jeroen Mollink*, Radboud University and University of Oxford, 2014–2018.

- *Yuhang Shi*, University of Oxford, 2013–2017.
- *Wenchuan Wu*, University of Oxford, 2013–2017.
- *Tianyou Xu*, University of Oxford, 2013–2017.
- *Nadine Graedel*, University of Oxford, 2012–2016.
- *Wilfred Lam*, University of Oxford, 2010–2014.
- *Way Cherng Chen*, University of Oxford and A*STAR Singapore, 2009–2013.
- *Robert Frost*, University of Oxford, 2008–2012.
- *Rob (HN) Tijssen*, University of Oxford, 2007–2011.
- *Jennifer McNab*, University of Oxford, 2005–2008.

Educational Activities

Lecturing

- *Oxford-Nottingham Biomedical Imaging CDT*, Module Director, 2014–2019.
- *FMRIB Graduate Program: Physics Course*, Director & Principal Lecturer, 2006–2014.
- *ISMRM Educational Courses: Various Topics*, 2008–2014, 2016.
- *FSL Course: Physics of MRI, FMRI and Diffusion MRI*, 2008–2016.
- *OHBM Educational Courses: Various Topics*, 2014–2015.
- *ESMRMB Diffusion Course*, University of Oxford, 2010.
- *Institute of Biomedical Engineering Doctoral Training Centre*, University of Oxford, 2010–2011.
- *EPIC (GE) Sequence Programing*, Designed/Taught Course, Stanford University, 2004.
- *Medical Imaging II: Electrical Engineering*, Teaching Assistant, Stanford University, 2001.

Students Examined

- *Charles Millard*, DPhil, University of Oxford, 2021.
- *Rachel Barrett*, PhD, Kings College London, 2021.
- *Sophie Schauman*, DPhil, University of Oxford, 2020.
- *Hossein Rafipoor*, DPhil Transfer, University of Oxford, 2020.
- *Daniel West*, PhD, Kings College London, 2020.
- *Emil Ljungberg*, PhD, Kings College London, 2020.
- *Daniel Gomes*, PhD, Radboud University, Nijmegen, 2019.
- *Ferenc Mozes*, DPhil, University of Oxford, 2019.
- *Sophie Schauman*, DPhil Transfer, University of Oxford, 2018.
- *Sven Jaeschke*, DPhil Transfer, University of Oxford, 2017.
- *Emmanuel Vallee*, DPhil Transfer, University of Oxford, 2015.
- *Olivia Viessmann*, DPhil Transfer, University of Oxford, 2014.
- *Sezgi Goksan*, DPhil Transfer, University of Oxford, 2014.
- *Steve Patterson*, PhD, Dalhousie University, 2013.
- *Eleanor Berry*, DPhil Transfer, University of Oxford, 2013.
- *Anna Blazejewska*, PhD, University of Nottingham, 2013.
- *James Kolasinski*, DPhil Transfer, University of Oxford, 2012.
- *Pieter Buur*, PhD, Radboud University, Nijmegen, 2011.
- *Tom Okell*, DPhil Transfer, University of Oxford, 2009.
- *Kyle Pattinson*, DPhil, University of Oxford, 2008.
- *Julien Cohen-Adad*, PhD, University of Montreal and Ecole Centrale Paris, 2008.

Public Engagement, Media and Outreach

- *SHElock (day event with girls aged 11-14)*, Oxford 2019.
- *My Love Affair with the Brain (public panel)*, Brain Awareness Week 2018.
- *Curiosity Carnival (science festival)*, Oxford 2017.
- *Massive U.K. Brain-Mapping Project Releases First Results*, Scientific American 2016.
- *All In the Mind*, BBC Radio 4 2015.
- *How the smallest atoms revolutionized neuroscience,* St Anne's College, Oxford 2013.
- *Physics on the brain,* Chippewa Falls PEO 2011.
- *My career in brain imaging,* Chippewa Falls High School 2011.
- *The importance of brain donation,* Autism Speaks, Oxford 2011.
- *Diffusion imaging of post-mortem human brains,* Brain Bank for Autism, Oxford 2010.
- *Wonderful protons: Revealing the brain's secrets with MRI*, Royal Aademy of Engineering 2009.
- *MRI: A window into the working brain*, Royal Academy of Engineering 2007.

Major Projects

Grants and Research Contracts

10/2022-09/2027 *Biophysical Signal Prediction for Translation of Population Neuroimaging*
Wellcome Trust Senior Research Fellowship, £1,998,763 (pending award letter)
Investigators: Miller

04/2022–03/2024 *Wellcome Trust Centre for Integrative Neuroimaging - Extension*
Wellcome Trust Centre Grant, £2,801,188
Investigators: Johansen-Berg (PI), Behrens, Harrison, Husain, Jenkinson, Jezzard, Mackay, Miller, Nichols, Nobre, Rushworth, Smith, Tracey, Turner, Woolrich.

12/2019–11/2024 *Integrative imaging of brain structure and function in populations and individuals*
Wellcome Trust Collaborative Award, £4,106,203
Investigators: Smith (PI), Jbabdi, Miller, Woolrich, Jenkinson, Beckmann, Robinson.

04/2017–04/2022 *Wellcome Trust Centre for Integrative Neuroimaging*
Wellcome Trust Centre Grant, £11,463,085
Investigators: Johansen-Berg (PI), Behrens, Harrison, Husain, Jenkinson, Jezzard, Mackay, Miller, Nichols, Nobre, Rushworth, Smith, Tracey, Turner, Woolrich.

10/2016–09/2021 *Linking MRI and microscopy for multi-scale neuroscience: Mechanisms, diagnostics and anatomy*
Wellcome Trust Senior Research Fellowship, £1,793,980
Investigators: Miller

1/2016–12/2018 *The UK7T Network: developing ultra-high field MRI for biomedical research*
MRC Partnership Grant, £1,309,733
Investigators: Bowtell (PI), Miller (Oxford PI), Carpenter, Rowe, Williams, Wise, Jones, Linden, Muir, Goense, Muckli, Francis, Glover, Gowland, Morris, Bajaj, Clare, Jezzard, Mackay

10/2015–9/2017 *Improving ultra-high field MRI using parallel transmit technology*
Wellcome Trust Multi-user Equipment Grant, £147,000
Investigators: Clare (PI), Miller, Jezzard, Tracey, Johansen-Berg, Stagg, Smith, Emir, Behrens, Nobre

06/2015–05/2020 *National Facility for In Vivo MR Imaging of Human Tissue Microstructure*
EPSRC Strategic Equipment Award, £2,944,960
Investigators: Jones (PI), Parker, Cercignani, Alexander, Dell'Acqua, Bowtell, Wise, Thomas, Singh, Miller

2/2014–2/2016 *Investigating and validating MRI-based markers of white matter microstructure*
Wellcome Trust Fellowship Enhancement (joint award), £161,955
Investigators: Miller (PI), Johansen-Berg

2/2014-2/2016 *The role of myelin in experience-dependent white matter plasticity* Wellcome Trust Fellowship Enhancement (joint award), £187,532
Investigators: Johansen-Berg (PI), Miller

6/2013–3/2017 *Novel MRI techniques for brain banking and motor neuron disease research*
MRC, £594,000
Investigators: Miller (PI), Ansorge, Turner

2/2012–8/2016 *Advanced FMRI acquisition, reconstruction and signal processing for dynamic brain network imaging*
EPSRC, £556,000
Investigators: Miller (PI), Smith, Blumensath

3/2011–2/2017 *New methods for interrogating white matter microstructure with MRI*
Wellcome Trust Career Development Fellowship, £686,000
Investigators: Miller (PI)

3/2011–2/2014 *Investigating cortical pathways with diffusion-tensor imaging (DTI), manganese-enhanced MRI and modern histological techniques in monkeys and humans*
BBSRC, £1,000,000
Investigators: Krug (PI), Bridge, Miller

7/2008–7/2011 *New tools for understanding white matter disease using diffusion MRI*
EPSRC, £550,000
Investigators: Smith (PI), Behrens, Miller

4/2006–3/2011 *Improved imaging of brain function and connectivity*
Royal Acad Eng/EPSRC Post-Doctoral Fellowship, £240,000
Investigators: Miller

1/2008–8/2010 *Studentship in FMRI of the Brainstem*
GlaxoSmithKline, £30,000
Investigators: Miller

8/2008–8/2009 *Feasibility study for MRI and neuropathological investigations of the role of anatomical connections in determining patterns of neurodegeneration in MS*
MS Society, £136,000
Investigators: Johansen-Berg (PI), Miller, Palace

4/2006–4/2008 *Integrated Structural and Diffusion Imaging for AD*
GlaxoSmithKline, £200,000
Investigators: Miller (PI), Smith, Johansen-Berg

10/2005–6/2008 *Diffusion imaging of post-mortem brain tissue*
Charles Wolfson Charitable Trust Studentship, £130,000
Investigators: Aziz (PI), Miller

4/2004–4/2006 *Methodology development of steady-state diffusion and functional brain imaging*
GlaxoSmithKline, £140,000
Investigators: Jezzard (PI), Miller

1/2004–1/2006 *Imaging brain activation with steady-state MRI*
NIH R21 EB002969, $300,000
Investigators: Pauly (PI), Miller

Research Consortia

- Member: *Integrative Imaging of Brain Structure & Function (WT Collaborative Award)*, 2019–2024
- Consultant: *Integrated Neural Networks in the Primate Brain (WT Strategic Award)*, 2014–2019
- Member: *Developing Human Connectome Project (ERC-Funded Consortium)*, 2013–2018
- Consultant: *FAST INdICATE (NIHR/MRC-Funded Trial)*, 2012–2015
- Co-Lead, Brain Imaging: *UK Biobank Imaging Enhancement Working Group*, 2011–2018
- Consultant: *Human Connectome Project (NIH-Funded Consortium)*, 2010–2014

Publications and Presentations

† Equal contribution (indicated for KL Miller only).

Preprints (Original Research)

- Wu W, Baxter L, Rieger SW, Adams E, Andersson JLR, Cobo Andrade M, Andritsou F, Bastiani M, Evans Fry R, Frost R, Fitzgibbon S, Foxley S, Fowler D, Gallagher C, Howard AFD, Hajnal JV, Moultrie F, Monk V, Porter DA, Papp D, Price A, Sallet J, Sanders M, Wilkinson D, Smith SM, Slater R† , **Miller KL**† (2021). The Forget-Me-Not dHCP study: 7 Tesla high resolution diffusion imaging in the unfixed post-mortem neonatal brain. *bioRxiv*.

- Griffanti L, Raman B, Alfaro-Almagro F, Filippini N, Cassar MP, Sheerin F, Okell T, Kennedy McConnell FA, Chappell MA, Wang C, Arthofer C, Lange FJ, Andersson JLR, Mackay CA, Tunnicliffe E, Rowland M, Neubauer S, **Miller KL**, Jezzard P, Smith SM (2021). Adapting the UK Biobank brain imaging protocol and analysis pipeline for the C-MORE multi-organ study of COVID-19 survivors. *medRxiv*.

- Kleinnijenhuis M, Johnson E, Mollink J, Jbabdi S, **Miller KL** (2020). A semi-automated approach to dense segmentation of 3D white matter electron microscopy. *bioRxiv*.

- Huszar IN, Pallebage-Gamarallage M, Foxley S, Tendler BC, Leonte A, Hiemstra M, Mollink J, Smart A, Bangerter-Christensen S, Brooks H, Turner MR, Ansorge O, **Miller KL**, Jenkinson M (2019). Tensor image registration library: Automated non-linear registration of sparsely sampled histological specimens to post-mortem MRI of the whole human brain. *bioRxiv*.

Journal Articles (Original Research)

- Griffanti L, Gillis G, O'Donaghue MC, Blane J, Pretorius PM, Mitchell R, Aikin N, Lindsay K, Campbell J, Semple J, Alfaro-Almagro F, Smith SM, Miller KL, Martos L, Raymont V, Mackay CE (2022). Adapting UK Biobank imaging for use in a routine memory clinic setting: the Oxford Brain Health Clinic. *NeuroImage: Clinical*, in press.

- Kor DZL, Jbabdi S, Huszar IH, Mollink J, Tendler BCT, Foxley S, Wang C, Scott C, Smart A, Ansorge O, Pallebage-Gamarallage M, **Miller KL**†, Howard AFD† (2022). An automated pipeline for extracting histological stain area fraction for voxelwise quantitative MRI-histology comparisons. *NeuroImage*, in press.

- Yao J, Tendler BC, Zhao Z, Lei H, Zhang L, Bao A, Zhong J, **Miller KL**, He H (2022). Both noise-floor and tissue compartment difference in diffusivity contribute to FA dependence on b-value in diffusion MRI. *Human Brain Mapping*, in [press.

- Duff E, Zelaya F, Alfaro Almagro F, **Miller KL**, Martin N, Nichols TE, Taschler B, Griffanti L, Arthofer C, Douaud G, Wang C, Okell TW, Bethlehem RAI, Eickel K, Gunther M, Menon DK, Williams G, Facer B, Lythgoe DJ, Dell' Acqua F, Wood GK, Williams SCR, Houston G, Keller SS, Holden C, Hartman M, George L, Breen G, Michael BD, Jezzard P, Smith SM, Bullmore ET (2022). Reliability of multi-site UK Biobank MRI brain phenotypes for the assessment of neuropsychiatric complications of SARS-CoV-2 infection: the COVID-CNS travelling heads study. *PLoS ONE*, in press.

- Howard AFD, Cottaar M, Drakesmith M, Fan Q, Huang SY, Jones DK, Lange FJ, Mollink J, Rudrapatna SU, Tian Q, **Miller KL**†, Jbabdi S† (2022). Estimating axial diffusivity in the NODDI model. *NeuroImage*, in press.

- Graedel NN, **Miller KL**, Chiew M (2022). Ultra-High Resolution fMRI at 7T using Radial-Cartesian TURBINE sampling. *Magnetic Resonance in Medicine*, in press.

- Topiwala A, Wang C, Ebmeier KP, Burgess S, Bell S, Gelernter J, Petersen SE, Raman B, Smith SM, **Miller KL**, Nichols TE (2022). Moderate alcohol consumption and brain iron accumulation: observational and genetic analyses. *PLoS Medicine*, e1004039.

- Tendler BC, Hanayik T, Ansorge O, Bangerter-Christensen S, Berns GS, Bertelsen MF, Bryant KL, Foxley S, van den Heuvel M, Howard AFD, Huszar I, Khrapitchev AA, Leonte A, Manger PR, Menke RAL, Mollink J, Mortimer D, Pallebage-Gamarallage M, Roumazeilles L, Sallet J, Scholtens LH, Scott C, Smart A, Turner MR, Wang C, Jbabdi S†, Mars RB†, **Miller KL**† (2022). The Digital Brain Bank, an open access platform for post-mortem datasets. *eLife*, 11:e73153.

- Wang C, Martins-Bach AB, Alfaro-Almagro F, Douaud G, Klein JC, Llera A, Fiscone C, Bowtell R, Elliott LT, Smith SM, Tendler BC† , **Miller KL**† (2022). Phenotypic and genetic associations of quantitative magnetic susceptibility in UK Biobank brain imaging. *Nature Neuroscience*, 25: 818–831.

- Douaud G, Lee S, Alfaro-Almagro F, Arthofer C, Wang C, Lange F, Andersson JLR, Griffanti L, Duff E, Jbabdi S, Taschler B, Winkler A, Collins R, Matthews PM, Allen N, **Miller KL**, Nichols TE, Smith SM (2022). SARS-CoV-2 is associated with changes in brain structure in UK Biobank. *Nature*, 604: 697–707.

- Testard C, Brent LJN, Andersson JLR, Chiou KL, Negron-DelValle JE, DeCasien AR, Acevedo-Ithier A, Stock MK, Anton SC, Gonzalez O, Walker CS, Foxley S, Compo NR, Bauman S, Ruiz-Lambides AV, Martinez MI, Pate Skene JH, Horvath JE, Cayo Biobank Research Unit, Higham JP, **Miller KL**, Snyder-Mackler N, Montague MJ, Platt ML, Sallet J (2022). Social connections predict brain structure in a multidimensional free-ranging primate society. *Science Advances*, 8:eabl5794.

- Sundaresan V, Arthofer C, Zamboni G, Dineen RA, Rothwell PM, Sotiropoulos SN, Auer DP, Tozer D, Markus HS, **Miller KL**, Dragonu I, Sprigg N, Alfaro-Almagro F, Jenkinson M, Griffanti L (2022). Automated detection of candidate subjects with cerebral microbleeds using machine learning. *Frontiers in Neuroinformatics*, 15: 777828.

- Shahdloo M, Schuffelgen U, Papp D, **Miller KL**, Rushworth M, Chiew M (2022). Model-based dynamic off-resonance correction for improved accelerated fMRI in awake behaving non-human primate. *Magnetic Resonance in Medicine*, 87: 2922–2932.

- Tendler BC, Qi F, Foxley S, Pallebage-Gamarallage M, Menke RAL, Ansorge O, Hurley SA†, **Miller KL**† (2021). A method to remove the influence of fixative concentration on post-mortem T_2 maps using a Kinetic Tensor model. *Human Brain Mapping*, 42: 5956–5972.

- Tang-Wright K, Smith JET, Bridge H, **Miller KL**, Dyrby TB, Ahmed B, Reislev NL, Sallet J, Parker AJ, Krug K. Intra-areal visual topography in primate brains can be mapped with probabilistic tractography of diffusion-weighted imaging. *Cerebral Cortex*, 32:2555-2574.

- Cottaar M, Wu W, Tendler BC, Nagy Z, **Miller KL**, Jbabdi S (2021). Quantifying myelin in crossing fibres using DIffusion-Prepared Phase Imaging (DIPPI): Theory & simulations. *Magnetic Resonance in Medicine*, 86: 2618–2634.

- Mason HT, Graedel NN, **Miller KL**†, Chiew M† (2021). Subspace-constrained approaches to low-rank fMRI acceleration. *NeuroImage*, 238: 118235.

- Bryant KL, Ardesch DJ, Roumazeilles L, Scholtens L, Khrapitchev AA, Tendler BC, Wu W, **Miller KL**, Sallet J, van den Heuvel M, Mars RB (2021). Diffusion MRI data, sulcal anatomy, and preliminary tractography for selected samples from the Primate Brain Bank. *Brain Structure and Function*, 2497–2509.

- Raman B, Cassar MP, Tunnicliffe EM, Griffanti L, Alfaro-Almagro F, Okell T, Sheerin F, Xie C, Mahmod M, Mozes FE, Lewandowski AJ, Ohuma E, Holdsworth D, Lamlum H, Woodman MJ, Krasopoulos C, Miller R, Kennedy McConnell FA, Wang C, Arthofer C, Lange FJ, Andersson J, Jenkinson M, Channon K, Ferreira VM, Piechnik SK, Klenerman P, Brightling C, Talbot NP, Petousi N, Rahman NM, Ho LP, Saunders K, Geddes JR, Harrison PJ, Pattinson K, Rowland MJ, Angus BJ, Gleeson F, Pavlides M, Koychev I, **Miller KL**, Mackay C, Jezzard P, Smith SM, Neubauer S (2021). Medium-term effects of SARS-CoV-2 infection on multiple vital organs, exercise capacity, cognition, quality of life and mental health, post-hospital discharge. *EClinicalMedicine*, 31: 100683.

- Alfaro-Almagro F, McCarthy P, Ayouni S, Andersson JLR, Bastiani M, **Miller KL**, Nichols TE, Smith SM (2021). Confound modelling in UK Biobank brain imaging. *NeuroImage*, 224: 117002.

- Wang C, Foxley S, Ansorge O, Bangerter-Christensen S, Chiew M, Leonte A, Menke RAL, Mollink J, Pallebage-Gamarallage M, Turner MR, **Miller KL**†, Tendler BC† (2020). Methods for quantitative susceptibility and R2* mapping in whole post-mortem brains at 7T applied to amyotrophic lateral sclerosis. *NeuroImage*, 222: 117216.

- Roumazeilles L, Eichert N, Bryant KL, Folloni D, Sallet J, Vijayakumar S, Foxley S, Tendler BC, Jbabdi S, Reveley C, Verhagen L, Dershowitz LB, Guthrie M, Flach E, **Miller KL**, Mars RB (2020). Longitudinal connections and the organization of the temporal cortex in macaques, great apes, and humans. *PLoS Biology*, 18:3000810.

- Tendler BC, Foxley S, Hernandez-Fernandez M, Cottaar M, Scott C, Ansorge O, **Miller KL**†, Jbabdi S† (2020). Use of multi-flip angle measurements to account for transmit inhomogeneity and non-Gaussian diffusion in DW-SSFP. *NeuroImage*, 220: 1171113.

- Littlejohns T, Holliday J, Gibson L, Garratt S, Oesingmann N, Alfaro-Almagro F, Bell J, Boultwood C, Collins R, Conroy M, Crabtree N, Doherty N, Frangi A, Harvey N, Leeson P, **Miller K**, Neubauer S, Petersen S, Sellors J, Sheard S, Smith S, Sudlow C, Matthews P, Allen N (2020). The UK Biobank imaging enhancement of 100,000 participants: rationale, data collection, management and future directions. *Nature Communications*, 11: 2624.

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Invited Reviews, Book Chapters and Commentaries

- Slator PJ, Palombo M, **Miller KL**, Westin CF, Laun F, Kim D, Haldar JP, Benjamini D, Lemberskiy G, de Almeida Martins JP, Hutter J. Combined diffusion-relaxometry microstructure imaging: Current status and future prospects. *Magn Reson Med*, 86: 2987–3011.
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- Roebroeck A, **Miller KL**, Aggarwal M (2019). Ex vivo diffusion MRI of the human brain: Technical challenges and recent advances. *NMR in Biomedicine*, 32: e3941.
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- Niazy RK, Xie J, **Miller KL**, Beckmann CF, Smith SM (2011). Spectral characteristics of resting-state networks. *Progress in Brain Research (v193): Slow Brain Oscillations of Sleep, Resting State and Vigilance*, Ch 17.
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Intellectual Property

- Chance S, McKavannagh R, Jenkinson M, **Miller KL**. Medical imaging (Microstructural brain changes for diagnosis of cognitive disorders). US Patent 10,884,090.
- Porter DP, Jezzard P, Frost R, **Miller KL**. Diffusion-weighted magnetic resonance imaging using 3D mosaic segmentation and 3D navigator phase correction. US Patent 8,760,163.
- **Miller KL** and Pauly JM. Functional magnetic resonance imaging using steady state free precession. US Patent 7,096,056.
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Invited Lectures

- Invited Talk: Neurotech Conference MIT 2022.
- Invited Talk: Siemens Symposium OHBM 2022.
- Seminar: University of Iowa 2022.
- Plenary: International Society for Magnetic Resonance in Medicine (ISMRM) 2022.
- Keynote: International Society for MR Radiographers & Technologists 2022.
- Invited Talk: Icahn School of Medicine at Mount Sinai Symposium 2022.
- Invited Talk: Japanese Meeting for Human Brain Imaging 2021.
- Invited Talk: Terra Incognita Workshop Amsterdam 2021.
- Seminar: University of British Columbia 2021.
- Invited Talk: University of Bonn Clinical and Population Science Retreat 2021.

- Invited Talk: University of Michigan Grand Rounds 2020.
- Invited Talk: University of Michigan Engineering 2020.
- Invited Talk: OHBM Australia Chapter Meeting 2020.
- Invited Talk: UK Biobank Scientific Conference 2020.
- Seminar: Kings College London 2020.
- Seminar: Institut du Cerveau Paris 2020.
- Seminar: University of Manchester 2019.
- Invited Talk: NeuroImaging in ALS Society 2019.
- Seminar: Oxford Big Data Institute 2019.
- Invited Talk: MR Balkans 2019.
- Invited Talk: OHBM Symposium 2019.
- Invited Talk: McGill 7T Launch 2019.
- Invited Talk: ISMRM Symposium 2019.
- Seminar: Champalimaud, Lisbon 2019.
- Seminar: Universidad Catolica, Santiago 2019.
- Seminar: London (WCHN-ION) Brain Meeting 2018.
- Seminar: ISMRM Journal Club 2018.
- Invited Talk: Gordon Conf In Vivo MR 2018.
- Invited Talk: Wellcome Trust Symposium 2018.
- Invited Talk: Oxford Neuroscience Symposium 2018.
- Keynote: Cambridge Imaging Festival 2018.
- Invited Talk: NeuroSpin 10th Anniversary 2018.
- Chaucer Lecture: University of Cambridge 2018.
- Sylvius Lecture: University of Leiden 2017.
- Plenary: ESMRMB 2017.
- Invited Talk: Big Data in Health 2017.
- Online Seminar: Stanford 2017.
- Keynote: OHBM 2017.
- Seminar: UCL 2017.
- Invited Talk: BASP Workshop 2017.
- Invited Talk: NSF Global Brain Projects, NYC 2016.
- Invited Talk: ISMRM Diffusion Workshop, Lisbon 2016.
- Invited Talk: British Chapter of the ISMRM, Leeds 2016.
- Invited Talk: Siemens Symposium, ISMRM 2016.
- Seminar: Cuban Neuroscience Institute 2016.
- Invited Talk: Wellcome Trust Symposium 2015.
- Invited Talk: Minnesota High-Field Workshop 2015.
- Invited Talk: Siemens Symposium, OHBM 2015.
- Invited Talk: Morning Symposium, OHBM 2015.
- Educational Lecture: OHBM 2015.
- Invited Talk: British Neuroscience Association 2015.
- Seminar: Warwick University 2015.
- Seminar: Donders Centre 2015.
- Seminar: Maastricht University 2015.
- Invited Talk: GE Whitney Symposium 2014.
- NIBIB New Horizons Keynote Lecture, ISMRM 2014.

- Educational Lecture, ISMRM 2014.
- Educational Lecture, OHBM 2014.
- Educational Lecture, OHBM 2014.
- Seminar, Siemens Molecular 2014.
- Invited Talk, NC3Rs Workshop 2013.
- Seminar, Max Planck Tuebingen 2013.
- Educational Lecture, Simons Foundation Colloquium, NYU 2013.
- Invited Talk, Oxford Imaging Festival 2013.
- Seminar, University of Pennsylvania 2013.
- Educational Lecture, ISMRM 2013.
- Seminar, King's College London 2013.
- Seminar, ETH Zurich 2013.
- Invited Talk, Nijmegen Symposium on MR NeuroImaging 2013.
- Invited Talk, Wellcome Trust 2013.
- Seminar, CMIC, University College London 2012.
- Invited Talk, Irish Diffusion Imaging Group (IDIG) Workshop 2012.
- Educational Lecture, ISMRM 2012.
- Seminar, CIRC Singapore 2012.
- Plenary, ENC 2012.
- Seminar, Siemens Magnet Technology 2012.
- Invited Talk, OHBM Workshop 2011.
- Invited Talk, School on MR and Brain Function, Erice 2011.
- Educational Lecture, ISMRM 2011.
- Educational Lecture, ISMRM 2011.
- Seminar, BIMG, Birmingham 2011.
- Seminar, Max Planck Institute, Leipzig 2011.
- Seminar, Hammersmith, Imperial College 2011.
- Seminar, CRMBM, Marseilles 2011.
- Invited Talk, NISALS Workshop, Oxford 2010.
- Seminar, Massachusetts General Hospital, Boston 2010.
- Seminar, SPMMRC, Nottingham 2010.
- Educational Lectures (2), ISMRM 2010.
- Seminar, ICH University College London 2010.
- Seminar, NIH 2010.
- Seminar, Johns Hopkins University 2010.
- Educational Lecture, ISMRM 2009.
- Seminar, MRSRL Stanford University 2008.
- Seminar, UCSD Center for FMRI San Diego 2008.
- Seminar, CISC Brighton 2008.
- Educational Lecture, ISMRM 2008.
- Seminar: FC Donders Centre, Nijmegen 2008.
- Seminar: GlaxoSmithKline CIC, London 2007.
- Invited Talk: OHBM Workshop 2007.
- Invited Talk: UK Diffusion Interest Group 2006.
- Invited Talk: British Chapter ISMRM 2005.
- Seminar: Engineering Sciences, Oxford 2004.
- Seminar: Wurzburg 2004.
- Seminar: Siemens Medical Systems, Erlangen 2004.