

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
 Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Emir, Uzay E

eRA COMMONS USER NAME (credential, e.g., agency login): UZAYEMIR

POSITION TITLE: Assistant Professor of School of Health Sciences

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Ege University, Izmir, Turkey	B.S	06/2001	Electrical and Electronics
Bogazici University, Istanbul, Turkey	M.Sc.	06/2003	Biomedical Engineering
Bogazici University, Istanbul, Turkey	Ph.D.	01/2008	Biomedical Engineering
University of Minnesota, Minneapolis, USA	Postdoctoral	03/2013	Center for Magnetic Resonance Research
University of Oxford, Oxford, UK	Lead Physicist	08/2017	Wellcome Centre for Integrative Neuroimaging

B. Positions, Scientific Appointments, and Honors

Positions and Employment

2002-2008 Research Assistant, The Institute of Biomedical Engineering, Bogaziçi University, Istanbul, Turkey
 2008-2013 Research Associate, Center for Magnetic Resonance Research, University of Minnesota, USA
 2013-2017 Principal Investigator, FMRI Centre, University of Oxford, UK
 2017- Assistant Professor, School of Health Sciences, Purdue University, USA

Other Experience and Professional Memberships

2007- Member, International Society for Magnetic Resonance in Medicine
 2015-2016 Secretary, Psychiatric MR Spectroscopy & Imaging Study Group
 2016-2017 Vice-Chair, Psychiatric MR Spectroscopy & Imaging Study Group
 2017-2018 Chair, Psychiatric MR Spectroscopy & Imaging Study Group
 2019- Member, International 7T Glioma Magnetic Resonance Spectroscopy Network
 2020- Handling Editor of Aperture, a society journal of Organization for Human Brain Mapping
 2021- Scialog Fellow through the Research Corporation for Science Advancement: Advancing Bioimaging Fellow

Honors

2008 Honor Student (Necmi Tanyolaç Award), Boğaziçi University, Istanbul, Turkey
 2012 Outstanding Teacher Award, MR Spectroscopy & Spectroscopic Imaging course of the ISMRM
 2016 Thomas Willis Early Career Researcher Prize, an outstanding piece of research published in The Nuffield Department of Clinical Neurosciences, University of Oxford, UK
 2020 Best in Physics (Imaging) Award, an outstanding piece of research in 2020, American Association of Physicists in Medicine Annual Meeting.

C. Contributions to Science

The key developments and improvements I have achieved over the past three years have led to a portfolio of successful neuroscientific and technical development studies, including:

- **Methodological developments: I have developed and implemented new techniques of magnetic resonance imaging (MRI), magnetic resonance spectroscopic imaging (MRSI) and magnetic resonance spectroscopy (MRS), resulting in two patent applications.**

Shen X, Özen AC, Sunjar A, Ilbey S, Shi R, Chiew M, Emir U. Myelin Imaging Using 3D Dual-echo Ultra-short Echo Time MRI with Rosette k-Space Pattern. bioRxiv. 2021.

Emir UE, Sood J, Chiew M, Thomas MA, Lane SP. High-resolution metabolic mapping of the cerebellum using 2D zoom magnetic resonance spectroscopic imaging. Magn Reson Med. 2021 May;85(5):2349–2358. PMID: 33283917.

Alhulail AA, Xia P, Shen X, Nichols M, Volety S, Farley N, Thomas MA, Nagel AM, Dydak U, Emir UE. Fast in vivo ²³Na imaging and T2* mapping using accelerated 2D-FID UTE magnetic resonance spectroscopic imaging at 3 T: Proof of concept and reliability study. Magn Reson Med. 2021 Apr;85(4):1783-1794. PMID: 33166096; PMCID: PMC7832172.

Alhulail AA, Patterson DA, Xia P, Zhou X, Lin C, Thomas MA, Dydak U, Emir UE. Fat-water separation by fast metabolite cycling magnetic resonance spectroscopic imaging at 3 T: A method to generate separate quantitative distribution maps of musculoskeletal lipid components. Magn Reson Med. 2020 Sep;84(3):1126–1139. PMCID: PMC7583348.

Steel A, Chiew M, Jezard P, Voets NL, Plaha P, Thomas MA, Stagg CJ, Emir UE. Metabolite-cycled density-weighted concentric rings k-space trajectory (DW-CRT) enables high-resolution 1 H magnetic resonance spectroscopic imaging at 3-Tesla. Sci Rep. 2018 May 17;8(1):7792.

- **Neurochemical profiling of brain cancer: I led a cross-department study to differentiate gliomas with IDH mutation by measuring 2-HG, resulting in a patent application.**

Shams Z, van Der Kemp WJ, Emir UE, Dankbaar JW, Snijders TJ, de Vos FY, Klomp DW, Wijnen JP and Wiegers EC. Comparison of 2-Hydroxyglutarate detection with sLASER and MEGA-sLASER at 7T. Front. Neurol., 2021

Shen X, Voets NL, Larkin SJ, de Pennington N, Plaha P, Stacey R, McCullagh JSO, Schofield CJ, Clare S, Jezard P, Cadoux-Hudson T, Ansorge O, Emir UE. A Noninvasive Comparison Study between Human Gliomas with IDH1 and IDH2 Mutations by MR Spectroscopy. Metabolites. 2019 Feb 20;9(2). PubMed PMID: 30791611; PubMed Central PMCID: PMC6409728.

Berrington A, Voets NL, Larkin SJ, de Pennington N, McCullagh J, Stacey R, Schofield CJ, Jezard P, Clare S, Cadoux-Hudson T, Plaha P, Ansorge O, Emir UE. A comparison of 2-hydroxyglutarate detection at 3 and 7 T with long-TE semi-LASER. NMR Biomed. 2018 Mar;31(3). PubMed PMID: 29315915.

- **Studying the neurochemical basis of brain plasticity: We investigated neurochemical profile changes associated with brain plasticity.**

Koolschijn RS, Shpektor A, Clarke WT, Ip IB, Dupret D, Emir UE, Barron HC. Memory recall involves a transient break in excitatory-inhibitory balance. Elife. 2021

Frangou P, Emir UE, Karlaftis VM, Nettekoven C, Hinson EL, Larcombe S, Bridge H, Stagg CJ, Kourtzi Z. Learning to optimize perceptual decisions through suppressive interactions in the human brain. Nat Commun. 2019 Jan 28;10(1):474.

Koolschijn RS, Emir UE, Pantelides AC, Nili H, Behrens TEJ, Barron HC. The Hippocampus and Neocortical Inhibitory Engrams Protect against Memory Interference. Neuron. 2019 Feb 6;101(3):528-541.

