

Dr. Subhadip Paul

RESEARCH INTERESTS:

- 1) Investigation of the organization principles of the structural and functional networks of the human brain in health and diseases using computational modeling of large-scale brain-imaging signals.
- 2) Understanding the genetic signatures underlying neuroimaging-based structural and functional phenotypes of the human brain.
- 3) Development of multi-modal brain-imaging data analysis methods/tools for diagnosis of brain diseases.
- 4) Understanding the relationship between the structural/ functional brain network organization principles and human cognition/ behavior.

CURRENT AFFILIATION

Assistant Professor (2021 – current)

Department of Biomedical Science and Technology (School of Biological Sciences),
Department of Sports Science and Yoga (School of Rehabilitation and Sports Science),
Ramakrishna Mission Vivekananda Educational and Research Institute (RKMVERI),
Belur Math, Howrah, West Bengal, India

Scientist, 2021 - current

JIVAN – Centre for Research in Life Sciences,
Ramakrishna Mission Seva Pratishthan (RKMS),
Sarat Bose Road, Kolkata, West Bengal, India.

RESEARCH EXPERIENCES / WORK EXPERIENCES:

Post-doctoral Fellow (2019-2021)

The Mind Research Network (Formerly MIND Institute), USA

Newton International Fellow (Post-doctoral) (2016-2018)

Institute of Psychiatry, Psychology & Neuroscience
King's College London, United Kingdom.

Research Fellow (Post-PhD) (2015-2016)

National Neuroimaging Facility, National Brain Research Centre (NBRC),
Manesar, Gurgaon, India.

Visiting Research Fellow (Pre-Ph.D) (2008-2009)

7 Tesla MRI Team, Image Sciences Institute,
University Medical Centre, Utrecht University,
The Netherlands

Research Fellow (Pre-Ph.D) (2007-2008)

Department of Biomedical Engineering, University of Modena and Reggio Emilia,
Modena, Italy.

EDUCATION

Ph.D (Computational Neuroscience) 2015

National Brain Research Centre (Department of Biotechnology Institute, Govt. of India), Gurgaon, India
Thesis Title: Higher order Diffusion Tensor Imaging and Stochastic Perturbation Response in Brain Tumour.

M.Sc in Physics, 2004 (Specialization: Biophysics):

Department of Physics, University of Pune, Pune, India

Bachelor of Science, 2002 (Honours in Physics):

Scottish Church College, University of Calcutta, Calcutta, India

Higher Secondary Examination, 1998 (10+2 / XII):

West Bengal Council of Higher Secondary Education, West Bengal, India

Secondary Examination, 1996 (10 / X):

West Bengal Board of Secondary Education, West Bengal, India

RESEARCH FUNDING / GRANT

Principal Investigator/ Award holder: Dr. Subhadip Paul

Awarded GBP 99,000 (approximately Rs. 99.12 lakh) by the **Newton Fund (UK)** and the **Academy of Medical Sciences (UK)** for the study of "Investigating the role of altered brain network dynamics and connectivity in Schizophrenia" (2016 – 2018). **Co- PI:** Prof. Sagnik Bhattacharyya, King's College London.

FELLOWSHIPS / AWARDS / HONOURS/ SCHOLARSHIPS

1. **Newton International Fellowship** from the **Newton Fund (UK)** and the **Academy of Medical Sciences (UK)** to perform post-doctoral research at King's College London (2016-2018) (selected).
2. **Research Fellowship** from the **Ministry of University Studies and Research (Republic of Italy)** to perform research for one year at the University of Modena, Italy (2007-2008) (selected).
3. **Research Fellowship** from the **Utrecht University (The Netherlands)** to perform research at Image Sciences Institute, University Medical Centre, Utrecht University, The Netherlands (2008) (selected).
4. One of the publications (Subhadip Paul et al, J. Neural Engineering 2019) was selected as **one of the featured articles in the journal during 2018-2019**.
5. **Travel Grant** from the **International Brain Research Organization (IBRO)** and the **Society for Neuroscience (SFN)** to present at Society for Neuroscience annual meeting (2014) (selected).
6. **Travel Award** from the Scholarship Committee, Stochastic Resonance 2008, **University of Perugia, Italy** (2008) (selected).
7. **International travel grant** from **Department of Science and Technology, Government of India** to present at Society for Neuroscience annual meeting (2012) (selected).
8. **International travel grant** from **Department of Biotechnology, Government of India** to present at Society for Neuroscience annual meeting (2012) (selected) (surrendered in favor of the DST's Travel Grant).
9. **National Scholarship** from **Ministry of Human Resource Development (MHRD)**, Government of India for **securing rank** in the state Secondary Examination (1996-1998) (selected).
10. **Certificate of appreciation** from the District Council, **Government of West Bengal** for securing rank in the district in the Secondary Examination (1996) (selected).
11. Received **National Scholarship** at the Secondary stage based on merit in National Scholarship Examination of the **Government of West Bengal, India** (1993-1996) (selected).

INTERNATIONAL PATENTS

Prasun K. Roy, **Subhadip Paul**. Technique to enhance the clinical efficiency of radiotherapy and radiosurgery using perturbative beaming and tissue-specific radiobiology.

1. **U.S. Patent:** US8804906 B2 (**Status: patent granted/issued**)
2. **Canadian Patent:** CA2778337C (**Status: patent granted/issued**)

INTERNATIONAL PUBLICATIONS (Refereed)

1. Maurer JM, **Subhadip Paul**, Edwards BG, Anderson NE, Nyalakanti PK, Harenski CL, Decety J, Kiehl KA. Reduced structural integrity of the uncinat fasciculus in incarcerated women scoring high on psychopathy. *Brain Imaging and Behavior*. Online ahead of print, doi: 10.1007/s11682-022-00684-z. 2022. (**Impact factor: 3.224**).
2. Vikas Pareek, **Subhadip Paul**, Prasun Kumar Roy. Corpus callosum remodeling in glioma: constancy of fiber density and anisotropy in MRI. *Canadian Journal of Neurological Sciences*, 49(2):282-286, 2022. (**Impact factor: 2.915**).
3. **Subhadip Paul**, Arora A, Midha R, Vu D, Roy PK, Belmonte MK. Autistic traits and individual brain differences: Functional network efficiency reflects attentional and social impairments, structural nodal efficiencies index systemising and theory-of-mind skills. *Molecular Autism*, 12(1):3, 2021. (**Impact factor: 6.476**).
4. **Subhadip Paul**, S. Bhattacharyya. Cannabis use related working memory deficit is mediated by lower left hippocampus volume. *Addiction Biology*, 26 (4): e12984, 2021. (**Impact factor: 4.093**).
5. Velayudhan L, Francis S, Dury R, **Subhadip Paul**, Bestwn S, Gowland P, Bhattacharyya S. Hippocampal functional connectivity in Alzheimer's disease: a resting state 7T fMRI study. *International Psychogeriatrics*, 33 (1) 95-96, 2021. (**Impact factor: 7.191**).
6. J. M Maurer, **Subhadip Paul**, Nathaniel Anderson, P. Nyalakanti, Kent A. Kiehl. Youth with elevated psychopathic traits exhibit structural integrity deficits in the uncinat fasciculus. *Neuroimage: Clinical*, 26: 102236, 2020. (**Impact factor: 4.891**).
7. **Subhadip Paul**, Satyam Mukherjee, Sagnik, Bhattacharyya. Network organization of co-opetitive genetic influences on morphologies of the human cerebral cortex. *Journal of Neural Engineering*, 16 (2) 026028-38 2019. (Selected as one of the featured articles published in this journal during 2018-19) (**Impact factor: 5.043**).
8. V. Pareek, **Subhadip Paul**, V. P. S. Rallabandi, Prasun K. Roy. Patterning of corpus callosum integrity in glioma observed by MRI: effect of 2D bi-axial lamellar brain architecture. *Journal of Neuro-Oncology* (144) 1, 165-177 2019. (**Impact factor: 4.506**).
9. **Subhadip Paul**, Sagnik Bhattacharyya. Does thinner right entorhinal cortex underlie genetic liability to cannabis use? *Psychological Medicine*, 48 (16) 2766-2775, 2018. (**Impact factor: 10.592**).

10. Otte WM, van Diessen E, **Subhadip Paul**, Ramaswamy R, Subramanyam RVP, Stam CJ, Roy Prasun Kumar. Aging alterations in whole-brain networks during adulthood mapped with the minimum spanning tree indices: the interplay of density, connectivity cost and life-time trajectory. *Neuroimage*, 109 (1) 171-189, 2015. (**Impact factor: 7.4**).
11. **Subhadip Paul**, Prasun Kumar Roy. Strategy for stochastic dose-rate induced enhanced elimination of malignant tumour without dose escalation. *Mathematical Medicine and Biology*, 33(3) 319-328, 2016. (**Impact factor: 1.349**).
12. **Subhadip Paul**, Prasun Kumar Roy. The consequence of day-to-day stochastic dose deviation from the planned dose in fractionated radiation therapy. *Mathematical Biosciences & Engineering*, 13(1) 159-170, 2016. (**Impact factor: 2.194**).
13. **Subhadip Paul**, Prasun Kumar Roy. The effect of stochastic fluctuation in radiation dose-rate on cell survival following fractionated radiation therapy. *Physics in Medicine & Biology*, 57(6) 1561-1573, 2012. (**Impact factor: 4.174**).

Presentations/ Abstracts in International Conferences

1. Subhadip Paul, A. Arora, R. Midha, D. Vu, P. K. Roy and M. Belmonte. Autistic traits are both distributed and localised within structural and functional brain networks. International Society for Autism Research, Montreal, Canada, 2019
2. M. K. Belmonte, D. Vu, **Subhadip Paul**, A. Arora, R. Midha, P. K. Roy. Individual variations in autistic traits are reflected in brain network topologies: behavioural, psychometric and neuroimaging assays. *Experimental Psychology Society Meeting*, Leicester, UK. 2018.
3. **Subhadip Paul** and Sagnik Bhattacharyya. Genetic liability of right entorhinal cortex to cannabis use. *Winter Science Meeting of Academy of Medical Sciences*, London, UK, 2017.
4. S. Sen, **Subhadip Paul**, P. Parisar, P. Raghunathan, S. Kumaran, S. Iyenger. A three-dimensional stereotaxic MRI brain atlas of house crow (*Corvus splendens*). *Society for Neuroscience Annual Meeting*, San Diego, USA, 2016.
5. **Subhadip Paul**, V. S. Mehta, P. K. Roy. Alteration of small world anatomical networks in the patients with brain lesions. *Society for Neuroscience Annual Meeting*, Washington DC, USA, 2014.
6. **Subhadip Paul**, K. Durgaprasad, J. Vadlamudi, S. Kondra, S. Rallabandi and P. K. Roy. Construction of Indian MRI brain template. *Society for Neuroscience Annual Meeting*, New Orleans, USA, 2012.
7. **Subhadip Paul**, V. S. Mehta and P. K. Roy. Higher rank diffusion tensor imaging of brain tumours. *Annual Meeting of the Organization on Human Brain Mapping*, Quebec City, Canada, 2011.
8. **Subhadip Paul** and Prasun K. Roy. Correlated noise induced modification of DNA single strand break by environmental radiation. *Stochastic Resonance 2008 (1998SR2008)*, Perugia, Italy, 2008.
9. Vani Kashyap, Tanuj Gulati, **Subhadip Paul**, Prasun Roy. Stochastic approach to diagnostic characterization of MRI using fractal morphometry: An initial study. *Neuroscience Research*. Kyoto, Japan, 55S, S72, 2006.

Presentations/ Abstracts in National Conferences

1. Koustav Chatterjee, **Subhadip Paul**, Rebecca Banerjee, Supriyo Choudhury, Mona Tiwari, Hrishikesh Kumar. Brain morphometries and gait dysfunction in Progressive Supranuclear Palsy and Vascular Parkinsonism. 6th National Conference of Movement Disorders Society Of India - MDSICON 2021-22 · 13th - 15th May 2022
1. **Subhadip Paul**, Daniel Polders, Veer S. Mehta, Pater Luijten, Hans Hoogduin and P. K. Roy. Tumourigenic field model of neoplastic growth. *Indian Academy of Neurosciences Annual Meeting*, New Delhi, 2011.
2. **Subhadip Paul**, Veer Singh Mehta and Prasun K. Roy. In vivo non-invasive characterization of brain tumour tissue using higher (fourth) order DTI. *Indian Academy of Neurosciences Annual Meeting*, Jaipur, 2009.
3. **Subhadip Paul** and Prasun K. Roy. Diffusion tensor imaging and its application to brain tumor margin delineation. *National Workshop cum Training Programme on Advanced Numerical Techniques and Applications*, BHU (Varanasi), 2009.
4. **Subhadip Paul**, Kanad Basu and Prasun K. Roy. Radiation therapy planning of brain tumours using stochastic perturbation. *NBRC International Conference*, New Delhi, 2006.

MENTORING OF M.Sc. STUDENTS AT KING'S COLLEGE LONDON

M.Sc. students: Sana Bestwn, Camille Meze, Dominic Burrows.

M.Sc. THESES SUPERVISIONS

Debrin Bhowmick, Prakriti Sundar Samanta.

AD HOC REVIEWER

Psychological Medicine, Journal of Physics: Complexity, Biomedical Physics and Engineering Express.

PERSONAL DETAILS

Nationality: Indian (by birth), Gender: Male. DOB: 26th November 1980.

Email: subhadip.paul.ssy@gm.rkmvu.ac.in