

# MR MIKE HART

## MICHAEL GAVIN HART

BSc (Hons) MBChB AHEA PhD FRCSEd (Surg.Neurol) FEBNS

Nationality: British Citizen  
GMC: 6134656 (revalidation 12 September 2027) / Last Appraisal: August 2023  
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## CAREER SUMMARY

My clinical interests embody the full sphere of functional neurosurgery including movement disorders, pain, and epilepsy. I have pursued multiple fellowships both at home (St George's Hospital) and abroad (Montpellier, France; Vancouver, Canada) to establish expertise in these areas while complimenting comprehensive neurosurgery training in Cambridge.

Maximising benefit and minimising harm in functional neurosurgery are the overarching background themes to my academic pursuits. I leverage cutting-edge neuroimaging methods (ultra-high field 7T MRI, connectomics) to understand both disease mechanisms (thalamic sensorimotor dysintegration) and novel treatment targets (tractography-based stimulation).

Translating technological advances to improved patient care is effected through judicious industry collaborations. My work leverages consultancy agreements for cell delivery in movement disorders (Novo Nordisk) and epilepsy (uniQure), leading trials on novel electrode design (Boston Scientific Inc), and app development for surgical planning (NetSym®) and accuracy appraisal.

Overall, my aim is to provide a wide-ranging clinical and academic practice in functional neurosurgery that allows patients to benefit from the latest clinical advances, research discoveries, and technological innovations.

## QUALIFICATIONS

Fellow of the European Board of Neurological Surgery (FEBNS)	European Association of Neurosurgical Societies (EANS)	2020
Fellow of the Royal College of Surgeons [FRCSEd (Surg.Neurol)]	Royal College of Surgeons of Edinburgh (RCSEd)	2019
PhD	University of Cambridge	2017
Associate of the Higher Education Authority (AHEA)		2013
MBChB	University of Edinburgh	2006
BSc (Hons)	University of Edinburgh	2004

## EMPLOYMENT

Interim Devices Working Group (IDWG) Member	MHRA	2023-
Consultant Neurosurgeon	New Victoria Hospital	2023-
Senior Lecturer	St George's, University of London	2022-
Honorary Consultant Neurosurgeon	St George's Hospital	2022-
Locum Consultant in Neurosurgery	St George's Hospital	2021-2022
Senior Fellow in Functional Neurosurgery	St George's Hospital	2021
Fellowship in Functional Neurosurgery	Vancouver, Canada	2020-2021
Observership in Brain Mapping	Montpellier, France	2019
PhD	Cambridge	2014-2017
Cochrane Co-ordinating Editor	Bath	2011-2018
Neurosurgery Trainee	Cambridge	2009-2020
FTSTA1 Neurosurgery & Neurology	Bristol	2008-2009
Foundation Programme	East of Scotland	2006-2008

## AWARDS

Braakman Prize (1 <sup>st</sup> place in the FEBNS exam)	EANS	2020
Codman Fellowship Award	Vancouver	2020
Ward Improvement Prize ('SAFER' Ward Rounds)	Addenbrooke's hospital	2019
Making a Difference Nomination	Addenbrooke's hospital	2019
Syme Medal (prize for excellence on a submitted thesis)	RCSEd	2018
Cambridge Society for the Application of Research (CSAR) Award	Cambridge	2017
Codman Travel Grant (CNS attendance)	New Orleans	2017
Sir Hugh Cairns Essay Prize (annual competition on original material)	SBNS	2016
Cambridge Neuroscience Poster Prize	Cambridge	2015

## I: RESEARCH

**ORCID:** <https://orcid.org/0000-0002-1789-2039>

**Web of Science:** 31 documents, 605 times cited, *h*-index 12

**Scopus:** 39 documents, 884 citations by 816 documents, *h*-index 14

**Publons:** <https://publons.com/researcher/1660122/michael-hart/metrics/>

Peer reviews: 14 (9 verified) since 2018

**ResearchGate:** [researchgate.net/profile/michael\\_hart8](https://www.researchgate.net/profile/michael_hart8)

total items: 40, H = 15, RG = 32.22, research interest = 704.2, citations = 1126

## GRANTS & FUNDING

- 2022-**            **RAPID CNS Study**  
CI: Michael Hart. Boston Scientific Corporation.
- 2022-**            **GEMINI-OS: platform informatics for data-driven neuromodulation**  
Co-I (CI: O-Keefe J, Humphries M, Bridge T, Baig F, Morgante F, Pereira E, Ricciardi L)  
Innovate UK Biomedical Catalyst ID: 10036282  
£2,245,814 over 36 months
- 2022-**            **Concept Development Award, SGUL**  
DBS-assured: automated accuracy appraisal of electrode  
CI: MG Hart, E Pereira, A Mostofi  
£17,000 over 12 months
- 2021-2022**    **Molecular and Clinical Sciences Institute Funding**  
October 2021. Graphics Processor Unit (GPU). £5980.80 January 2022. Server capacity at SGUL (2TB). £600
- 2021-2022**    **High Performance Computing & Ultra-high field MRI for Deep Brain Stimulation: Maximising Benefit, Minimising Harm.** CI: MG Hart. Collaborators: Pereira E, Tan H, Morgante F, Howe F, Carmichael D. £10,000 over 2 years. Funded by the Royal College of Surgeons of Edinburgh and Guys and St Thomas' Trust (GSTT). CRN registered.
- 2021-2023**    **Closed-loop electronic stimulation (ES)-mechanomyogram sensor (MMG) system for passive tremor suppression treatment.**  
Co-I (CI C Kapatos, CI R Vaidyanathan, Co-I D Farina, Imperial College, London; SGUL Co-I F Baig, Co-I F Morgante, Co-I E Pereira). £1,000,074 over 2 years. NIHR I4I. Role: neuroimaging lead for biomarkers of tremor suppression.
- 2020-**            **Boston Scientific Cartesia eXTend Study**  
CI: F Morgante. Role: Study Delegate. Boston Scientific Inc.
- 2019-**            **Defining and manipulating the neural basis of hypoactive and hyperactive behaviours in Parkinson's disease.** CI L Ricciardi, Co-CI P Brown, Oxford University, Co-I M Edwards, Co-I F Morgante, Co-I E Pereira. £200,000 over 3 years. UK Medical Research Council. Role: supervision of Neuroimaging structural data analysis and electrode localisation (led by Bryony Ishihara).
- Novel Targeting for Deep Brain Stimulation and Disease Stratification in Dystonia: a randomized cross-over trial with open label phase comparing subthalamic and VIM Deep Brain Stimulation in Tonic and Tremor-Dominant Cervical Dystonia.** CI: Francesca Morgante, CO-CI Mark Edwards, Col Erlick Pereira. £230,000 over 2 years. Boston Scientific Inc. Role: neuroimaging lead for electrode localisation and stimulation effects.
- 2018**            **IMAGN(R) - Image Guidance Networks.** CI: MG Hart. Funder: Medtronic Research Programme. Award total: \$50,000
- 2014-18**        **Connectomics And Electrical Stimulation for Augmenting Resection (CAESAR).** PI: MG Hart. Funder: The Brain Tumour Charity. Award total: £50,000

2014-18 **Cochrane Gynaecological, Neuro-oncology and Orphan Cancer Group (GNOC)**. Funder: NIHR Infrastructure Grant, Award total: £150,000 per annum

## PUBLICATIONS

italic = submitted, IF = impact factor

*Romero-Garcia R, Aznarez-Sanado M, Li C, Morris RC, Price SJ, Manly T, Santarius T, Erez Y, Hart MG, Suckling J. Brain tumour heterogeneity is associated with post-surgical cognition. Submitted to Neuro-oncology, May 2023*

*Richardson D, Smith BG, Fang SWY, Hart MG, Pereira EAC. YouTube Videos for Describing Deep Brain Stimulation: a Systematic and Quantitative Review. Submitted to Neurosurgery, May 2023*

*Mostofi A, Bourlogioannis F, Ishihara B, Hart MG, Pereira EAC. Factors affecting targeting accuracy in deep brain stimulation. Submitted to Neuromodulation, January 2023*

46. *Krauss P, Duarte-Batista P, Hart MG, Avecilla-Chasin JM, Bercu MM, Hvingelby V, Massey F, Ackermans L, Kubbens PL, van der Gaag NA, Krueger MT, EANS Functional Section. Directional Electrodes in Deep Brain Stimulation: Results of a Survey by the European Association of Neurosurgical Societies (EANS). Accepted by Brain & Spine, January 2024*

45. Mandal A, Assem, M, Romero-Garcia R, Coelho P, McDonald A, Woodberry E, Morris RC, Price SJ, Duncan J, Santarius T, Suckling J, Hart MG, Erez Y. Tumour-infiltrated cortex participates in large-scale cognitive circuits. Accepted by **Cerebral Cortex**, January 2024

44. Hart MG, Polyhronopoulos N, Sandhu N, Honey CR. Deep brain stimulation improves symptoms of spasmodic dysphonia through targeting of thalamic sensory-motor connectivity. Accepted by **Neurosurgery**, December 2023

43. Ishihara B, Hart MG, Barrick T, Howe F, Morgante F, Pereira EAC. Radiofrequency thalamotomy for tremor causes focused, predictable, and stable lesion characteristics shown by magnetic resonance imaging. Accepted by **Brain Communications**, November 2023

42. Mostofi A, Hart MG, Pereira EAC. Raising standards of accuracy in deep brain stimulation requires consistent definitions and unbiased reporting. Accepted by **JNNP**, May 2023

41. Assem M, Hart MG, Coelho P, Romero-Garcia R, McDonald A, Woodberry E, Morris RC, Price SJ, Suckling J, Santarius, Duncan J, Erez Y. High gamma activity in frontal control regions revealed using intraoperative electrocorticography. **Cerebral Cortex**, February 2023, IF 4.8 DOI: 10.1016/j.cortex.2022.12.007

40. He S, Baig F, Merla A, Torrecillos F, Perera A, Wiest C, Debarros J, Benjaber M, Hart MG, Morgante F, Hasegawa H, Edwards M, Denison T, Pogosyan A, Ashkan K, Pereira E, Tan H. Beta-triggered adaptive deep brain stimulation during reaching movement in Parkinson's disease. Accepted by **Brain**, January 2023

39. Wiest C, Morgante F, Torrecillos F, Pogosyan A, He S, Baig F, Bertaina I, Hart MG, Edwards MJ, Pereira E, Tan H. Subthalamic stimulation-induced local field potential changes in dystonia. **Movement Disorders**, December 2022, IF 9.7, DOI: 10.1002/mds.29302

38. Hart MG. A fellowship in functional neurosurgery at the University of British Columbia. **Surgeons News**, December 2022, IF N/A

37. Romero-Garcia R, Mandal A, Bethlehem RAI, Crespo-Facorro B, Hart MG, Suckling J. Transcriptomic and connectomic correlates of differential spatial patterning among glioblastomas and low-grade gliomas. **Brain**, September 2022, IF 13.5, DOI: 10.1093/brain/awac378.
36. Hayley J, Hart MG, Mostofi A, Pereira EAC. No Adverse Effects following Off-Label Magnetic Resonance Imaging in a Patient with Two Deep Brain Stimulation Systems: A Case Report. **Stereotact Funct Neurosurgery**, July 2022, IF 2.04, DOI: 10.1159/000525538
35. Hart MG, Posa M, Buttery P, Morris RC. Increased variance in second electrode accuracy during deep brain stimulation and its relationship to pneumocephalus, brain shift, and clinical outcomes: a retrospective cohort study. **Brain and Spine**, March 2022, <https://doi.org/10.1016/j.bas.2022.100893>, IF TBC
34. Romero-Garcia R, Owen M, McDonald A, Woodberry E, Assem M, Coelho P, Morris RC, Price SJ, Santarius T, Suckling J, Manly T, Erez Y, Hart MG. Assessment of neuro-psychological function in brain tumour treatment: a comparison of traditional neuropsychological assessment with app-based cognitive screening. **Acta Neurochir** February 2022, DOI: 10.1007/s00701-022-051625, IF 1.83
33. Mandal AS, Romero-Garcia R, Seidlitz J, Hart MG, Alexander-Bloch A, Suckling J. Lesion covariance networks reveal proposed origins and pathways of diffuse gliomas. **Brain Commun** 2021 DOI: 10.1093/braincomms/fcab289, IF TBC
32. Romero-Garcia, R., Hart, M. G., Bethlehem, R., Mandal, A., Assem, M., Crespo-Facorro, B., Gorriz, J. M., et al. (2021). BOLD Coupling between Lesioned and Healthy Brain Is Associated with Glioma Patients' Recovery. **Cancers** 2021 <https://doi.org/10.3390/cancers13195008>, IF 6.64
31. Romero-Garcia, Suckling J, Owen M, Assem M, Coelho P, McDonald A, Woodberry E, Price SJ, Burke AGA, Santarius T, Erez Y, Hart MG. Memory recovery in relation to default mode network impairment and neurite density during brain tumour treatment. **J Neurosurg** 2021 DOI: 10.3171/2021.1/JNS203959, IF 4.13
30. Honey CM, Hart MG, Rammage LA, Morrison MD, Hu A, Honey CR. Thalamic deep brain stimulation ameliorates mixed and abductor spasmodic dysphonia: case reports and proof of concept. **Neurosurgery Open** 2021 DOI: 10.1093/neuopn/okab022, IF TBC
29. Mandal AS, Romero-Garcia R, Hart MG, Suckling J. Genetic, cellular, and connectomic characterization of the brain regions commonly plagued by glioma. **Brain** 2020 DOI: 10.1093/brain/awaa277, IF 13.5
28. Erez Y, Assem M, Coelho P, Romero-Garcia R, Owen M, McDonald A, Woodberry E, Morris RC, Price SJ, Suckling J, Duncan J, Hart MG, Santarius T. Intraoperative mapping of executive function using electrocorticography for patients with low grade glioma. **Acta Neurochir** 2020 DOI: 10.1007/s00701-020-04646-6, IF 1.83
27. Hart MG, Romero-Garcia R, Price SJ, Santarius T, Suckling J. Connections, Tracts, Fractals, and the Rest: a Working Guide to Network and Connectivity Analyses in Neurosurgery. **World Neurosurgery** 2020 DOI: 10.1016/j.wneu.2020.03.116, IF 1.83
26. Romero-Garcia R, Erez Y, Oliver G, Owen M, Merali S, Poologaindran A, Morris RC, Price SJ, Santarius T, Suckling J, Hart MG. Practical Application of Networks to Neurosurgery: Combined 3D Printing, Neuronavigation, and Pre-Operative Surgical Planning. **World Neurosurgery** 2020 DOI: 10.1016/j.wneu.2020.01.085, IF 1.83

25. Hart MG, Grant GR, Solyom EF, Grant R. Biopsy Versus Resection for High Grade Glioma. **Cochrane Database Syst Rev.** 2019. CD002034. doi: 10.1002/14651858.CD002034.pub2., IF 9.88
- 24§. Zheng X, Hart MG, Erzinclioglu S, Santarius T. MNGI-32. Long-term Cognitive Outcome of Meningioma and the Effects of Treatment (COMET) Study Results. **Neuro-oncology** 2019 DOI: 10.1093/neuonc/noy148.648
23. Hart MG, Romero-Garcia R, Price SJ, Suckling J. Global effects of focal brain tumors on functional complexity and network robustness: a prospective cohort study. **Neurosurgery.** 2018 DOI:10.1093/neuros/nyy378, IF 4.65
22. Jenkinson MD, Barone DG, Bryant A, Vale L, Bulbeck H, Lawrie TA, Hart MG, Watts C. Intraoperative Imaging Technology to Maximise Extent of Resection for Glioma. **Cochrane Database Syst Rev.** 2018; CD012788.pub2. doi: 10.1002/14651858.CD012788.pub2, IF 9.88
21. Abrigo JM, Fountain D, Provenzale JM, Law EK, Kwong JSW, Hart MG, Tam WWS. Magnetic Resonance Perfusion for Differentiating Low-grade from High-grade Gliomas at First Presentation. **Cochrane Database Syst. Rev.** 2018; CD011551. doi: 10.1002/14651858.CD011551.pub2, IF 9.88
20. Kostusiak M, Hart MG, Barone DG, Hofmann R, Kirillos R, Santarius T, Trivedi RA. Methodological Shortcomings in the Literature Evaluating the Role and Applications of 3D Training for Surgical Trainees. **Med. Teach.** 2017; 39(11):1-6. doi: 10.1080/0142159X.2017.1362102, IF 2.71
19. Hart MG, Housden CR, Suckling J, Tait R, Young AMH, Muller U, Newcombe VFJ, Jalloh I, Pearson B, Cross J, Trivedi RA, Pickard JD, Sahakian BJ, Hutchinson PJ. Advanced Magnetic Resonance Imaging and Neuropsychological Assessment for Detecting Brain Injury in a Prospective Cohort of University Amateur Boxers. **Neuroimage Clin.** 2017; 15:194-199 doi: 10.1016/j.nicl.2017.04.026, IF 4.88
18. Hart MG, Price SJ, Suckling J. Functional connectivity networks for pre-operative brain mapping in neurosurgery. **J Neurosurg.** 2017; 126(6):1941-1950. doi: 10.3171/2016.6.JNS1662, IF 4.13
17. Hart MG, Price SJ, Suckling J. Connectome analysis for pre-operative brain mapping in neurosurgery. **Br J Neurosurg.** 2016; 30(5):506-517. doi: 10.1080/02688697.2016.1208809, IF 1.29
16. Hart MG, Ypma RJ, Romero-Garcia R, Price SJ, Suckling J. Graph theory analysis of complex brain networks: new concepts in brain mapping applied to neurosurgery. **J Neurosurg.** 2016; 124(6):1665-1778 doi: 10.3171/2015.4.JNS142683, IF 4.13
15. Hart MG, Czosnyka M, Czosnka ZH, Fernandes HM. Combined Intracranial Pressure Monitoring and Cerebrospinal Fluid Infusion Study to Guide Management of Slit Ventricle Syndrome. **Pediatr Neurosurg.** 2013; 49(2):113-118. doi: 10.1159/000358561, IF 1.16
14. Hart MG, Santarius T, Trivedi R. Muscle and Nerve Biopsy for the Neurosurgical Trainee. **Br J Neurosurg.** 2013; 27(6):727-734. doi: 10.3109/02688697.2013.793288, IF 1.29

13. Hart MG, Sarkies NJ, Santarius T, Kirollos RW. Ophthalmological Outcome After Resection of Tumours Based on the Pineal Gland. **J Neurosurg**. 2013; 119(2):420-426. doi: 10.3171/2013.3.JNS122137, IF 4.13
12. Hart MG, Santarius T, Kirollos RW. How I Do It: Pineal Surgery - Supracerebellar Infratentorial Versus Occipital Transtentorial Approach. **Acta Neurochir (Wien)**. 2013; 155(3):463-467. doi: 10.1007/s00701-012-1589-5, IF 1.83
11. Hart MG, Garside R, Rogers G, Stein K, Grant R. Temozolomide for High Grade Glioma **Cochrane Database Syst Rev**. 2013. CD007415. doi: 10.1002/14651858.CD007415.pub2., IF 9.88
10. Hart MG, Nowell M, Coakham HB. Radiofrequency Thermocoagulation for Trigeminal Neuralgia Without Intra-operative Patient Waking. **Br J Neurosurg**. 2012; 26(3):392-396. doi: 10.3109/02688697.2012.673650, IF 1.29
9. Hart MG, Trivedi RA, Hutchinson PJ. Boxing Sparring Complicated by an Acute Subdural Haematoma and Brainstem Haemorrhage. **Br J Neurosurg**. 2012; 26(5):776-778. doi: 10.3109/02688697.2012.657270, IF 1.29
8. Hart MG. Neurosurgery: External Ventricular Drain Insertion. **Core Surgery**. 2012; 2(1):50-54.
7. Hart MG, Grant R, Garside R, Rogers G, Somerville M, Stein K. Chemotherapy Wafers for High Grade Glioma. **Cochrane Database Syst Rev**. 2011. CD007294. doi: 10.1002/14651858.CD007294.pub2, IF 9.88
6. Erridge SC, Hart MG, Kerr GC, Smith C, McNamara S, Grant R, Gregor A, Whittle IR. Trends in Classification, Referral and Treatment and the Effect on Outcome of Patients with Glioma: a 20 Year Cohort. **J Neurooncol**. 2011; 104(3):789-800. doi: 10.1007/s11060-011-0546-0., IF 4.13
5. Hart MG. Neurosurgery: Hydrocephalus. **Core Surgery**. 2011; 1(6):54-60.
4. Hart MG, Trivedi RA. Neurosurgery: Spinal Cord Trauma. **Core Surgery**. 2011; 1(3):42-48
3. Connor S, Hart MG, Redhead DN, Ireland H, Madhavan KK, Parks RW, Garden OJ. Follow-up and Outcomes for Resection of Colorectal Liver Metastases in Edinburgh. **Eur J Surg Oncol**. 2007; 33(1):55-60. doi: 10.1016/j.ejso.2006.09.017, IF 4.24
2. Hart MG, Hooper G. Clinical Associations of Dupuytren's Disease. **Postgrad Med J**. 2005; 81(957):425-428. doi: 10.1136/pgmj.2004.027425, IF 2.4
1. Hart MG, Grant R, Walker M, Dickinson H. Surgical Resection and Whole Brain Radiation Therapy Versus Whole Brain Radiation Therapy Alone for Single Brain Metastases. **Cochrane Database Syst Rev**. 2005. CD003292. doi: 10.1002/14651858.CD003292.pub2, IF 9.88

## Book Chapters

Hart MG, Grant R. Chapter 16: Evidence Based Neuro-oncology. In: Damaerschalk BM, Wingerchuk DM. **Evidence-Based Neurology: Management of Neurological Disorders**. Chennai, India: John Wiley & Sons Ltd; 2015. p143-152.

Hart MG, Grant R, Whittle IR. Chapter 25 - Steroids and Brain Tumours. In: Aminoff MJ, Boller F, Swaab DF. (eds.) **Handbook of Clinical Neurology: Neuro-Oncology**. Radarweg, Netherlands: Elsevier; 2012. p.371-379.

## Book reviews

Hart MG, Hutchinson PJA. Book Review: Neurotrauma: A Comprehensive Textbook on Traumatic Brain Injury and Spinal Cord Injury. **Neurosurgery** 2020 DOI: 10.1093/neuros/nyz466

## REVIEWING

Expert reviewer for the Medicines and Healthcare products Regulatory Agency (2022-).

Reviewer for: Acta Neurochirurgica; Brain and Behaviour; Cochrane Database of Systematic Reviews, Operative Neurosurgery; Journal of Neurology, Neurosurgery, and Psychiatry; Neurosurgery; Neurosurgery Focus; Scientific Reports.  
(Web of Science Researcher ID K-4919-2019).

Educational content reviewer for Brainbook (2022-).

## II: EDUCATION

### Teaching Awards

Excellence in Teaching Award	University of Cambridge	2016
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### Teaching at Courses

The DBS MDT: a Neurosurgeon's Perspective	London	2023
White Matter: Dissection & Tractography	Aberdeen	2023
Spinal Cord Stimulation for Pain Trainees	St Thomas'	2023
Aberdeen FRCS Neurosurgery Course	Aberdeen	2023
Advanced Trauma Life Support (ATLS)	London	2022, 2023
London DBS Nurses Association	London	2022
Barts X Imperial Neuroanatomy Club	London	2022, 2023
BNTA Course (Functional Neurosurgery)	Cambridge	2020
Neuroanatomy: Curriculum Development	University of Cambridge	2016-2020
Neuroanatomy Demonstrator	University of Cambridge	2014-2020
Cambridge Neurosurgery College Teaching	Addenbrooke's hospital	2018

### Formal Teaching

Lecturer on Clinical Neuroscience Practice MScSGUL		2023
Clinical Supervisor	University of Cambridge	2010-2015
Neurosciences Foundation Years Teaching	Addenbrooke's hospital	2013-2014

### Informal Teaching

Clinical supervisor for students rotating in neurosurgery at St George's Hospital delivering weekly small-group bedside teaching 2020-22

Regular contributor to both the registrar and FY teaching programmes in Addenbrooke's 2009-20



Enthusiastic contributor to bedside clinical teaching and intra-operative teaching for both medical & nursing students

## Junior Doctor Educational Supervision

Alex Alamri, PhD Candidate and Neurosurgery StR 5 OOPR (2022-ongoing)

Andrea Jaime, Junior Clinical Fellow, St George's Hospital (2022-ongoing)

## POST-GRADUTE STUDENT SUPERVISION

Alex Alamri, Phd Candidate, St George's University of London, 2022-  
"Biomarkers of pain"

Bryony Ishihara, PhD Candidate, St George's, University of London, 2022-  
"Neuroimaging Biomarkers in Deep Brain Stimulation"

Ayan Mandal, Gates Cambridge Scholar (PhD Candidate), 2018-2022  
"Multimodal Characterization of Adult Human Brain Regions Commonly Plagued by Glioma"

Anujan Poologaindran, The Alan Turing Institute Doctoral Student (PhD Candidate), 2018-2022  
"Homotopic structure and functional modularity"

## III: PRACTICE & EMINENCE

### COMMITTEES

Scientific Advisory Board, Epilepsy Institute	2023
St George's Information Systems Board Member	2023
British Society for Stereotactic & Functional Neurosurgery (BSSFN): Research & Governance lead	2022
European Association of Neurological Surgeons (EANS): Functional Board Member (DBS & epilepsy)	2021

### INVITED LECTURES

Networks in Functional Neurosurgery	Great Ormond Street	2023
Image-guided programming for DBS	Cambridge	2023
Establishing a Neuro-Devices PPIE Group	CloseNIT/Neuromod+	2023
On the road, to functional brain surgery	Brain School, RCS	2023
Epilepsy & Vagal Nerve Stimulation	Royal Society of Medicine	2023
Future of Neurostimulation in Cancer Pain	Royal Marsden, London	2022
St George's Hospital: Neurology Grant Round	London (virtual)	2021
Boston Scientific Webinar: Anatomy of the Pallidum	London (virtual)	2021
Boston Scientific Webinar: Anatomy of the Thalamus & Subthalamus	London (virtual)	2021
'How I Do It: Connectomics in	St George's,	2019

Functional Neurosurgery’ ‘Connectomics for the Neurosurgeon’	University of London University of British Columbia	2019
‘Network Approaches in Neurosurgery’	Great Ormond Street	2018
‘The Neurosurgeon, The Connectome, The Resting Brain’ Neuroscience Day	Cambridge Addenbrooke’s hospital	2016 2016

## IV: INNOVATION AND ENTERPRISE PORTFOLIO

### neuroXact: DBS accuracy, quantified

A start-up company ([www.neuroxact.com](http://www.neuroxact.com)) co-led with Erlick Pereira, Reader in Neurosurgery at SGUL. We provide individual statements (the “neuroXact™ report”) on DBS lead position in an objective, quantifiable, and reproducible manner. We have already started consultancy with Abbott, and held preliminary meetings with Rune Labs.

### DBS-assured: automated accuracy appraisal of electrode

Proposed a successful ‘pitch’ in a University led start-up funding award aiming to leverage technological innovation and translate to commercial application. Our successful application was on appraisal of DBS electrode insertion accuracy. Funded by a Concept Development Award, SGUL. CI: MG Hart, E Pereira, A Mostofi. £17,000 over 6 months as salary for Alaa Al-Mohamed.

### NetSym® Network Simulation App

Led development and coding of app. This leverages 3D printing, neuronavigation, and real-time advanced neuroimaging analyses for the purposes of neurosurgical planning. Additional applications include optimisation of research data acquisition, neuroanatomical teaching, and neurosurgical training. Subsequently developed into Image Guidance Networks (IMAGN®) iPhone Augmented Reality (AR) app. Non-disclosure agreement with Brainlab and \$50,000 grant from Medtronic to apply to StealthStation.

### Neuroimaging Coding Repository

Actively maintain an open-source coding repository on Github. This includes over 27 repositories, 148 files, and approximately 40,000 lines of code.

## CONSULTANCY

Boston Scientific	Independent advisor, March 2022-ongoing
Novo Nordisk	Formal consultancy, October 2021-ongoing
Corlieve Therapeutics SAS / UniQure	Formal consultancy, June 2021-ongoing
Sio Gene Therapies	Independent advisor, April 2021
Voyager Therapeutics, Inc	Independent advisor, February 2020

## V: ACADEMIC LEADERSHIP & ENTERPRISE

### LEADERSHIP & ADMINISTRATION

SBNS Breakfast Session on Epilepsy Surgery	London	2023
Lead for The Brain Tumour Charity Project 'CAESAR' Study	Cambridge	2017-2021
National Neurosurgery Finishing School	Bristol	2019
Chief Resident in Neurosurgery	Addenbrooke's hospital	2018-2019
MIAD Healthcare: Leadership	Cambridge	2018
Neurosurgery ST Rota Manager	Addenbrooke's hospital	2018-2020
Neurosurgery FY Rota Manager	Addenbrooke's hospital	2012-2014

### COMMUNITY OUTREACH

#### **An Introduction to the New GIRFT Cauda Equina Pathway**

Community outreach event to primary care professionals including GP's and related therapists. Sponsored by the New Victoria Hospital. Held at the Hilton Kingston, October 2023

#### **World Parkinson's Day Media Campaign**

Collaboration with Boston Scientific and Relations Group, April 2022

Interviews for twelve national and international radio & TV items with a reach of 6 million people

#### **Brainbook Podcast & Tweetorial**

Deep Brain Stimulation, March 2022

#### **Barts X Imperial Neuroanatomy Course**

Functional Neurosurgery, February 2022

Feedback: 57 attendees, functional neuroanatomy knowledge improved 3.6/10 to 6.2/10

#### **St George's Clinical Neuroscience Society Event**

Movement Disorders, December 2021

#### **Patient & Carer Day Open Day for the CAESAR Project**

Research update for involved patients and carers, 2019

#### **Awake Brain Surgery**

Programme 'Inside Out' on BBC Cambridge, 2018

#### **'Float like a butterfly, sting like a bee?'**

Presentation & debate for the Cambridge Science Festival Cambridge, 2018

#### **'So you want to be a brain surgeon?'**

Wisbech Grammar School & Loretto School, 2018

'Network Guided Neurosurgery'

#### **Cambridge Society for the Application of Research**

Award Prize Talk, 2018

## 'The brainmapper's guide to neurosurgery'

Whitby lecture, Downing College, 2016

## VI: CLINICAL PRACTICE

### LOGBOOK

Pre-June 2022

Total	2262
Index:	341
De-novo DBS Implantation	120 (23 STG, 7 TLC, 82 UBC, 8 ADH)
Neuromodulation	39
Epilepsy	23

### COURSES

Bond Solon Expert Witness	London	2023	6 CPD
ILAE Epilepsy Surgery	Vienna	2023	
Winter Cancer Pain School	Liverpool	2022	12 CPD
Stimwave Peripheral Nerve Stimulation	Munich	2022	
Institute of Government & Public Policy	London	2022	6 CPD
LivaNova Epilepsy Course	Vienna	2022	
Advanced Trauma Life Support Instructor	Harrogate	2021	
OHSU Stereotactic & Functional Neurosurgery	Virtual	2021	
Laser Interstitial Thermoablation (Monteris)	Virtual	2021	
Training the Trainers	Cambridge	2020	
National Neurosurgery Finishing School	Bristol	2019	
ATLS (Instructor Potential)	Silverstone	2019	
Chief Resident Programme	Cambridge	2018-2019	
MIAD Healthcare: Leadership Course	Cambridge	2018	
Deep Brain Stimulation: Fundamentals	Dusseldorf	2018	
Neurosurgical Approaches	Edinburgh	2018	
Good Clinical Practice§	Cambridge	2017	
White Matter Dissection	Lisbon	2017	
Data Science Bootcamp in Python§	Cambridge	2016	
Midas Rex Drilling Course	Lisbon	2015	
Making a Web App§	Cambridge	2015	

Exploring the Connectome§	Utrecht	2015
Solving Biological Problems with Python§	Cambridge	2015
Elementary Maths for Biologists§	Cambridge	2014
FSL Course§	Oxford	2014
EANS Training Course	Multiple	2014-2017
Approaches in Neurovascular Surgery	Cambridge	2014
Cambridge Lectures in Neurosurgical Anatomy	Cambridge	2010, 2012, 2014
Cambridge Anterior Skull Base Course	Cambridge	2010

§ PhD / Academic

## CONFERENCES

ILAE UK Meeting	Newcastle	2023
European Society for Stereotactic & Functional Neurosurgery (ESSFN)*	Stockholm	2023
World Society for Stereotactic & Functional Neurosurgery (WSSFN)*	Seoul	2022
Neuromodulation Society of UK & Ireland (NSUKI)	York	2022
Society of British Neurological Surgeons* (SBNS)	Multiple	2009, 2010, 2012, 2014, 2017, 2019
4 <sup>th</sup> Annual BC Neurosciences Academic Day§	Vancouver	2019
British Society for Stereotactic and Functional Neurosurgery (BSSFN)§	Cambridge, Bristol	2019, 2023
European Society for Stereotactic and Functional Neurosurgery (ESSFN)*	Edinburgh	2018
Joint Dutch / Belgian Neurosurgical Societies§	Den Bosch	2017
European LGG Network	Multiple	2017, 2018, 2019
Czech-Slovak Neurosurgery Meeting§	Brno	2016
Fifth Biennial Conference on Resting State & Brain Connectivity*	Vienna	2016
British Neurosurgery Research Group*	Cambridge, Cardiff	2016, 2018
EANS Meeting*	Madrid, Dublin	2015, 2019
Congress of Neurological Surgeons*	New Orleans	2015
European Association of Neuro-Ophthalmology*	Oxford	2013
Cochrane Colloquium & Symposia	Multiple	2011-2017

§Keynote | \*presented

## AUDIT

**Evaluation of an e-Health Screening Tool for Spinal Cord Stimulation (2022-2023)** Supervision of Stephanie Fang & Meredith MacDonald, St George's Hospital

## **Vagal Nerve Stimulation – a NICE Audit: 2022-ongoing**

Supervision of Moatisim Asim, St George's, University of London

## **Urinary catheterisation and related complications in neurosurgery: 2022-ongoing**

Supervision of Andrea Jaime and Hassan Raza, St George's University of London Introduction of a urinary catheterisation package of care and education programme

## **'SAFER' Grand Rounds: 2018-2019**

Package of initiatives resulting in a series of objective improvements to patient flow achieving trust level recognition

Addenbrooke's Hospital, Cambridge

## **Cognitive Outcomes in Meningiomas and the Effects of Therapy (COMET): 2016**

Recognition of the importance of neuropsychological outcomes after meningioma surgery

Proposal for routine follow-up and assessment under neuropsychology Addenbrooke's Hospital, Cambridge

## **C1-2 fracture management: 2014**

Validation of clinical outcomes with a variety of predominantly conservative measures

Addenbrooke's Hospital, Cambridge

## **Cambridge Adult Spinal Assessment Proforma for Assessment and Rehabilitation: 2014**

Design, implementation, and validation of a specific pro-forma for assessing spinal precautions after trauma

Addenbrooke's Hospital, Cambridge

## **Coiling for cerebral aneurysms: comparison with NICE standards: 2010**

Patients met accepted standards

Addenbrooke's Hospital, Cambridge

## **Infusion studies for normal pressure hydrocephalus: comparison with NICE standards: 2009**

Implementation of standard procedure specific consent and patient information pack

Addenbrooke's Hospital, Cambridge

## **Success and satisfaction with fluoroscopic radiofrequency rhizolysis for trigeminal neuralgia: 2008**

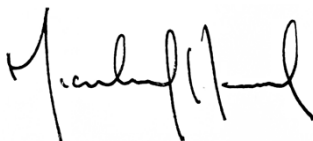
Validation of technique without intra- operative waking

Early report of patient satisfaction and quality of life outcomes

Frenchay Hospital, Bristol

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Signed:



Name:

**Michael Gavin Hart**

Date:

**16 February 2024**

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