

BIOGRAPHICAL SKETCH

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NAME Gore, John C.		POSITION TITLE Professor	
eRA COMMONS USER NAME (credential, e.g., agency login) JOHNGORE			
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Manchester, U.K.	BS	1972	Physics
University of London, U.K.	PhD	1976	Physics
Ealing College, London, U.K.	BA	1982	Law

A. Positions and Honors

Positions and Employment

1975 - 1981 Physicist, Royal Postgraduate Medical School & Hammersmith Hospital, London
 1981 - 1982 Technical Director, TEM Instruments, Ltd., Crawley, U.K.
 1982 - 1990 Associate Professor, Diagnostic Radiology, Yale University School of Medicine
 1982 - 2002 Director of NMR Research and Physics, Yale University School of Medicine
 1990 - 2002 Professor of Radiology, Yale University School of Medicine
 1991 - 2002 Professor of Applied Physics, Yale University
 1997 - 2001 Chairman, Program in Biomedical Engineering, Yale University
 2001 - 2002 Professor of Psychology, Yale University
 2002 - pres Chancellor's University Professor, Vanderbilt University
 2002 - pres Director, Vanderbilt Institute of Imaging Science
 2002 - pres Professor of Radiology, Professor of Biomedical Engineering, Professor of Physics, Professor of Molecular Physiology and Biophysics, Vanderbilt University

Honors

1969 - 1972 Hamer Major Open Scholarship, University of Manchester
 1985 Fellow of Institute of Physics, U.K.
 1989 Fellow, Society of Magnetic Resonance Imaging
 1997 Farrington Daniels Award (Best paper in Medical Physics)
 1998 Fellow, American Institute of Medical and Biological Engineers
 2004 Gold Medal, ISMRM

B. Selected Peer-Reviewed Publications (in chronological order)

- Ding Z, Gore JC, Anderson AW. Reduction of noise in diffusion tensor images using anisotropic smooting. *Magn Reson Med* 2005;53:485-90.
- Zhao Y, Anderson AW, Gore JC. Computer simulation studies the effects of dynamic shimming on susceptibility artifacts in EPI at high field. *J Magn Reson* 2005;173:10-22.
- Blumberg HP, Donegan NH, Sanislow CA, Collins S, Lacadie C, Skudlarski P, Gueorguieva R, Fulbright RK, McGlashan TH, Gore JC, Krystal JH. Preliminary evidence for medication effects on functional abnormalities in the amygdala and anterior cingulate in bipolar disorder. *Psychopharmacol* (Berl) 2005;183:308-13.
- Parsons EC Jr, Does MD, Gore JC. Temporal diffusion spectroscopy: theory and implementation in restricted systems using oscillating gradients. *Magn Reson Med* 2006;55:75-84.
- Joers JM, Fong PM, Gore JC. Detection of radiation effects in polymer gel dosimeters using 129 Xe NMR. *Phys Med Biol* 2006;51:N23-30.
- Hampson M, Tokoglu F, Sun Z, Schafer RJ, Skudlarski P, Gore JC, Constable RT. Connectivity-behavior analysis reveals that functional connectivity between left BA39 and Broca's area varies with reading ability. *Neuroimage* 2006;31:513-19.
- Lu Y, Aldroubi A, Gore JC, Anderson AW, Ding Z. Improved fiber tractography with Bayesian tensor regularization. *Neuroimage* 2006;31:1061-74.

8. Gore JC, Horovitz SG, Cannistraci CJ, Skudlarski P. Integration of fMRI, NIROT, and ERP for studies of human brain function. *Magn Reson Imaging* 2006;24:507-13.
9. Gultekin DH, Gore JC. Measurement of thermal diffusivity by magnetic resonance imaging. *Magn Reson Imaging* 2006;24:1203-7.
10. Newton AT, Morgan VL, Gore JC. Task demand modulation of steady-state functional connectivity to primary motor cortex. *Hum Brain Mapp* 2006 Nov 1 (epub ahead of print).
11. Hampson M, Driesen NR, Skudlarski P, Gore JC, Constable RT. Brain connectivity related to working memory performance. *J Neurosci* 2006;26:13338-43.
12. Driesen NR, Goldberg PA, Anderson AW, Tang L, Flanagan DE, Sherwin RS, Gore JC. Hypoglycemia reduces the blood-oxygenation level dependent signal in primary auditory and visual cortex: a functional magnetic resonance imaging study. *J Neurosci Res* 2007;85:575-82.
13. Yankeelov TE, Lepage M, Chakravarthy A, Broome EE, Niermann KJ, Kelley MC, Meszoely I, Mayer IA, Herman CR, McManus K, Price RR, Gore JC. Integration of quantitative DCE-MRI and ADC mapping to monitor treatment response in human breast cancer: initial results. *Magn Reson Imaging* 2007;25:1-13.
14. Gochberg DF, Gore JC. Quantitative magnetization transfer imaging via selective inversion recovery with short repetition times. *Magn Reson Med* 2007;57:437-41.
15. Morgan VL, Li Y, Abou-Khalil B, Gore JC. Development of 2dTCA for the detection of irregular, transient bold activity. *Hum Brain Mapp* 2007 Feb 8 (epub ahead of print).
16. Hoffman RE, Hampson M, Wu K, Anderson AW, Gore JC, Buchanan RJ, Constable RT, Hawkins KA, Sahay N, Krystal JH. Probing the pathophysiology of auditory/verbal hallucinations by combining functional magnetic resonance imaging and transcranial magnetic stimulation. *Cereb Cortex* 2007 Feb 13 (epub ahead of print).
17. Mishra A, Lu Y, Choe AS, Aldroubi A, Gore JC, Anderson AW, Ding Z. An image-processing toolset for diffusion tensor tractography. *Magn Reson Imaging* 2007;25:365-76.
18. Xu J, Does MD, Gore JC. Numerical study of water diffusion in biological tissues using an improved finite difference method. *Phys Med Biol* 2007;52:N111-26.
19. Maguire MA, Gore JC. The current state of NIH funding of research in diagnostic radiology at U.S. medical schools. *J Am Coll Radiol* 2007;2:436-43.
20. Luci JJ, Whitney HM, Gore JC. Optimization of MAGIC gel formulation for three-dimensional radiation therapy dosimetry. *Phys Med Biol* 2007;52:N241-8.
21. Rogers BP, Morgan VL, Newton AT, Gore JC. Assessing functional connectivity in the human brain by fMRI. *Magn Reson Imaging* 2007;25:1347-57.
22. Singh M, Kesterson RA, Jacobs MM, Joers JM, Gore JC, Emeson RB. Hyperphagia-mediated obesity in transgenic mice misexpressing the RNA editing enzyme ADAR2. *J Biol Chem* 2007;282:22448-59.
23. Zhang N, Gore JC, Chen LM, Avison MJ. Dependence of BOLD signal change on tactile stimulus intensity in SI of primates. *Magn Reson Imaging* 2007;25:784-94.
24. Morgan VL, Gore JC, Abou-Khalil B. Cluster analysis detection of functional MRI activity in temporal lobe epilepsy. *Epilepsy Res* 2007;76:22-33.
25. Yankeelov TE, Gore JC. Dynamic contrast enhanced magnetic resonance imaging in oncology: theory, data acquisition, analysis, and examples. *Current Medical Imaging Reviews* 2007;3:91-107.
26. Qin Q, Gore JC, Does MD, Avison MJ, de Graaf RA. 2D arbitrary shape-selective excitation summed spectroscopy (ASSESS). *Magn Reson Med* 2007;58:19-26.
27. Waddell KW, Avison MJ, Joers JM, Gore JC. A practical guide to robust detection of GABA in human brain by J-difference spectroscopy at 3T using a standard volume coil. *Magn Reson Imaging* 2007;25:1032-8.
28. Chen LM, Turner GH, Friedman RM, Zhang N, Gore JC, Roe AW, Avison MJ. High-resolution maps of real and illusory tactile activation in primary somatosensory cortex in individual monkeys with functional magnetic resonance imaging and optical imaging. *J Neurosci* 2007;27:9181-91.
29. Barros W Jr., Gochberg DF, Gore JC. Assessing signal enhancement in distant dipolar field-based sequences. *J Magn Reson* 2007;189:32-7.
30. Williams JM, Owens WA, Turner GH, Saunders C, Dipace C, Blakely RD, France CP, Gore JC, Daws LC, Avison MJ, Galli A. Hypoinsulemia regulates amphetamine-induced reverse transport of dopamine. *PLoS Biol* 2007;5:2369-78.
31. Lyshchik A, Fleischer AC, Huamani J, Hallahan DE, Brissova M, Gore JC. Molecular imaging of vascular endothelial growth factor receptor 2 expression using targeted contrast-enhanced high-frequency ultrasonography. *J Ultrasound Med* 2007;26:1575-86.
32. Qin Q, Gore JC, de Graaf RA, Does MD. Quantitative T (2) measurement of a single voxel with arbitrary shape using pinwheel excitation and CPMG acquisition. *MAGMA* 2007;20:233-40.
33. Lepage M, Dow WC, Melchior M, You Y, Fingleton B, Quarles CC, Pépin C, Gore JC, Matrisian LM, McIntyre JO. Noninvasive detection of matrix metalloproteinase activity in vivo using a novel magnetic resonance imaging contrast agent with a solubility switch. *Mol Imaging* 2007;6:393-403.

34. Barnes SL, Lyshchik A, Washington MK, Gore JC, Miga MI. Development of a mechanical testing assay for fibrotic murine liver. *Med Phys* 2007;34:4439-50.
35. Pham W, Xie J, Gore JC. Tracking the migration of dendritic cells by in vivo optical imaging. *Neoplasia* 2007;9:1130-7.
36. Niederhauser BD, Rosenbaum BP, Gore JC, Jarquin-Valdivia AA. A functional near-infrared spectroscopy study to detect activation of somatosensory cortex by peripheral nerve stimulation. *Neurocrit Care* 2008; 9: 31-6.
37. Tang L, Avison MJ, Gatenby JC, Gore JC. Failure to directly detect magnetic field dephasing corresponding to ERP generation. *Magn Reson Imaging* 2008; 26: 484-9.
38. Yankeelov TE, Luci JJ, Debusk LM, Lin PC, Gore JC. Incorporating the effects of transcytolemmal water exchange in a reference region model for DCE-MRI analysis: theory, simulations, and experimental results. *Magn Reson Med* 2008;59:326-35.
39. Fitsanakis VA, Zhang N, Anderson JG, Erikson KM, Avison MJ, Gore JC, Aschner M. Measuring brain manganese and iron accumulation in rats following 14 weeks of low-dose manganese treatment using atomic absorption spectroscopy (AAS) and magnetic resonance imaging (MRI). *Toxicol Sci* 2008;103: 116-24.
40. Morgan VL, Li Y, Abou-Khalil B, Gore JC. Development of 2dTCA for the detection of irregular, transient bold activity. *Hum Brain Mapp* 2008;29:57-69.
41. Pham W, Cassell L, Gillman A, Koktysh D, Gore JC. A near-infrared dye for multichannel imaging. *Chem Commun (Camb)* 2008; (16): 1895-7.
42. Li X, Yankeelov TE, Peterson TE, Gore JC, Dawant BM. Automatic nonrigid registration of whole body CT mice images. *Med Phys* 2008; 35: 1507-20.
43. Gultekin DH, Gore JC. Measurement of heat transfer coefficients by nuclear magnetic resonance. *Magn Reson Imaging* 2008 Jun 2 [epub ahead of print].
44. Morgan VL, Gore JC, Szaflarski JP. Temporal clustering analysis: what does it tell us about the resting state of the brain? *Med Sci Monit* 2008; 14: CR345-52.
45. Colvin DC, Yankeelov TE, Does MD, Yue Z, Quarles C, Gore JC. New insights into tumor microvasculature using temporal diffusion spectroscopy. *Cancer Res* 2008; 68: 5941-7.
46. Quarles CC, Lepage M, Gorden DL, Fingleton B, Yankeelov TE, Price RR, Matrisian LM, Gore JC, McIntyre JO. Functional colonography of Min mice using dark lumen dynamic contrast-enhanced MRI. *Magn Reson Med* 2008; 60: 718-26.
47. Li C, Kao CY, Gore JC, Ding Z. Minimization of region-scalable fitting energy for image segmentation. *IEEE Trans Image Process* 2008; 17: 1940-9.

C. Research Support

Ongoing Research Support

5R01 EB000461-06 Gore (PI)
NIH/NIBIB

07/01/02 – 01/31/13

Integrated Functional Imaging of the Human Brain

This was a research partnership designed to develop and integrate different methods of brain imaging using MRI, NIR, ERP and advanced methods of data analysis.

Role: Principal Investigator

5U54CA113007-03 Guaranta (PI)
NIH/NCI

09/30/05 – 08/31/09

Multiscale Mathematical Modeling of Cancer Invasion

This is a center grant to develop and validate mathematical models of cancer invasion. The imaging core provides support to the investigators on the P50 for imaging studies of in vitro and in vivo models of tumor growth and metastasis.

Role: Co-Investigator

5P30 CA068485-11 DuBois (PI)
NIH/CA

09/28/04 – 08/31/09

Cancer Center Support Grant

To coordinate and integrate the cancer-related activities of Vanderbilt, to conduct support and enhance cancer research and integrate cancer-related research throughout the university and to integrate, develop and conduct cancer education programs, and to coordinate and integrate the care of cancer patients at VUMC and the Veterans Administration Medical Center.

Role: Co-Investigator

1R01CA109106-01A2 Gore (PI)
NIH/NCI

03/16/06 – 02/28/11

MRI Diffusion in Tumors Using Oscillating Gradients

To develop new magnetic resonance imaging methods that measures the apparent diffusion coefficient (ADC) of water in tissues as a function of temporal frequency, and to evaluate whether so-called diffusion spectra are useful for the detection of tumors and for monitoring their response to treatment.

Role: Principal Investigator

2R01 NS034834-05A1 Gore (PI)
NIH/NINDS

01/15/05 – 12/31/08

Contrast Mechanisms in Diffusion Weighted MRI

To develop a comprehensive and quantitative understanding of the factors that affect the apparent diffusion rate of water and small metabolites in tissues, as measured using nuclear magnetic resonance.

Role: Principal Investigator

5R01 EB000214-16 Gore (PI)
NIH/NIBIB

09/08/05 – 07/31/09

Proton Relaxation and Contrast Mechanisms in MRI

Continue studies to better understand the factors that affect the NMR relaxation properties of protons in tissues and which determine contrast in MR images. Role: Principal Investigator

5P01 HD46261-05 Gore (PI)
NIH/NICHD/Univ.of Texas/Houston

09/26/03 – 07/31/09

Cognitive, Instructional and Neuroimaging Factors in Math

The aim of this project is to use state-of-the-art (3T) functional magnetic resonance imaging (fMRI) to identify and assess the neural circuits involved in various types of mathematical processing in third grade children.

Role: Principal Investigator

1R01 MH073028 Park (PI)
NIH/NIMH

08/17/06 – 07/31/11

Etiology of Working Memory Deficit in Schizophrenia

To investigate components of WM deficits in SZ from a cognitive neuroscience approach, to identify the factors are central to WM deficit, their neural correlates and the effects of WM deficit on social functional.

Role: Co-Investigator

2P01 CA040035 Mundy (PI)
NIH/NCI

09/01/06 – 08/31/11

Effects of Tumors on the Skeleton

To provide support for all work involving animals within each individual project. Services will include maintenance of tumor cell lines, management of all procedures involving small animals as well as state-of-the-art methods for assessing the effects of cancer on the skeleton.

Role: Co-Investigator

U54 CA126505 Matrisian (PI)
NIH

09/25/06 – 08/31/11

Paracrine TGF-Beta Signaling in Tumor Initiation and Progression

To establish the Vanderbilt University Tumor Microenvironment Network (VUTMEN) towards a comprehensive understanding of the role of the tumor stroma in cancer initiation, progression, and metastasis.

Role: Co-Investigator

Completed Research Support

7R01-NS33332-06 Gore (PI)
NIH

07/01/02 – 04/30/06

Biophysical Basis of Functional Brain MRI

The goals of this project were to develop an improved understanding of mechanisms involved in functional MRI of the brain and optimize imaging and data analysis strategies for the detection of neuronal activity.

Role: Principal Investigator