BIOGRAPHICAL SKETCH

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NAME	POSITION TITLE
FRISTON, Karl John	Professor (Imaging Neuroscience) Scientific Director (Functional Imaging Laboratory) Honorary Consultant (Neuropsychiatry)
eRA COMMONS USER NAME (credential, e.g., agency login)	

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

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	MM/YY	FIELD OF STUDY
Gonville and Caius College, Cambridge UK	B.A.	1980	Natural Sciences
King's College Medical School, London University	M.B.B.S	1983	Medicine
Bromley Hospital and Farnborough Hospitals UK	Internship	1984-85	Medicine and Surgery
Oxford University, UK	Residency	1985-88	Psychiatry
Hammersmith Hospital, London, UK	Fellow	1988-91	Neuroimaging

A. Personal Statement

Karl Friston is a neuroscientist and authority on brain imaging. He invented statistical parametric mapping; SPM is an international standard for analyzing imaging data and rests on the general linear model and random field theory (developed with Keith Worsley). In 1994, his group developed voxel-based morphometry. VBM detects differences in neuroanatomy and is used clinically and as a surrogate in genetic studies. These technical contributions were motivated by schizophrenia research and theoretical studies of value-learning (with Gerry Edelman). In 1995 this work was formulated as the disconnection hypothesis of schizophrenia (with Chris Frith). In 2003, he invented dynamic causal modeling (DCM), which is used to infer the architecture of distributed systems like the brain. Mathematical contributions include variational filtering and dynamic expectation maximization (DEM) for Bayesian model inversion and time-series analysis. Friston currently works on models of functional integration in the human brain and the principles that underlie neuronal interactions. His main contribution to theoretical neurobiology is a free-energy principle for action and perception. Friston received the first Young Investigators Award in Human Brain Mapping (1996) and was elected a Fellow of the Academy of Medical Sciences (1999) in recognition of contributions to the bio-medical sciences. In 2000 he was President of the international Organization of Human Brain Mapping. In 2003 he was awarded the Minerva Golden Brain Award (http://brain.berkeley.edu/~minerva1) and is among the top ten most cited scientists in neuroscience and behavior in the world (http://in-cites.com/top/2007/index.html). He was elected a Fellow of the Royal Society in 2006.

B. Positions and Honors

Academic and Clinical

1984 - 1985 Pre-registration: (*Surgery*) Bromley Hospital and (*Medicine*) Farnborough Hospitals, UK
1985 - 1988 Post-registration: Rotational Training Scheme in Psychiatry Oxford University Department of Psychiatry,
1988 - 1991 Honorary Senior Registrar Department of Psychiatry Charing Cross And Westminster Medical School, UK
1991 - 1994 Honorary Senior Registrar Royal Post Graduate Medical School, UK
1991 - 1992 Honorary Lecturer Royal Post Graduate Medical School, UK
1994 - 1997 Senior Lecturer Wellcome Department of Cognitive Neurology Institute of Neurology, UK
Honorary Senior Lecturer University Department of Psychiatry

Royal Free Hospital School of Medicine, UK
1997 - 1998 Reader, Institute of Neurology University College London, UK

Research

1987 - 1988 Wellcome Trust Research Fellow MRC Clinical Neuropharmacology Unit Oxford, UK
1988 - 1991 Wellcome Trust Research Fellow MRC Cyclotron Unit Hammersmith Hospital London, UK
1991 - 1992 MRC Clinical Scientist (Senior Grade) MRC Cyclotron Unit Hammersmith Hospital London, UK
1992 - 1994 W.M. Keck Foundation Fellow The Neurosciences Institute La Jolla CA, USA
1994 - 1999 Wellcome Senior Research Fellow in Clinical Science Institute of Neurology, UK

Current appointments

Scientific Director; Wellcome Trust Centre for Neuroimaging
Wellcome Principal Research Fellow, Institute of Neurology, UK
Honorary Consultant: The National Hospital for Neurology and Neurosurgery, Queen Square London, UK
Professor: Institute of Neurology, University College London, UK

Honors and Awards

Wiley Young Investigator Award in Human Brain Mapping 1996
Chaire Pharmacia-Upjohn Belgium 1998-1999
Golden Brain Award Minerva Foundation 2003
Medal, Collège de France (invited lecture series) 2008
Fellow of the Royal Society 2006

C. Selected Peer-reviewed Publications

Most relevant

- Friston, K. (2008). Hierarchical Models in the Brain. PLoS Comput Biol, 4(11): e1000211.
- Friston, K. (2005). A theory of cortical responses. Philos Trans R Soc Lond B Biol Sci, 360(1456),815-36.
- Friston, K. (2002). Functional integration and inference in the brain. Prog Neurobiol, 68(2), 113-43.
- Friston, KJ. (2001). Brain function nonlinear coupling and neuronal transients. Neuroscientist, 7(5), 406-18.
- Friston, KJ, Price, C.J. (2001). Dynamic representations and generative models of brain function. Brain Res Bull, 54(3), 275-85.
- Friston, K.J., Kiebel ,S.J. (2009). Predictive coding under the free-energy principle. Phil. Trans. R. Soc B, 364:1211-1221.
- Garrido, M.I., Kilner, J.M., Kiebel, S.J., Friston KJ. (2007). Evoked brain responses are generated by feedback loops. Proc Natl Acad Sci, 104(52), 20961-6.
- Marreiros, A.C., Kiebel, S.J., Daunizeau, J., Harrison, L.M., Friston, K.J. (2009). Population dynamics under the Laplace assumption. Neuroimage, 44(3), 701-14.
- David, O., Kilner, J.M., Friston, K.J. (2006). Mechanisms of evoked and induced responses in MEG/EEG.
  NeuroImage, 31(4), 1580-91.
- David, O., Cosmelli, D., Friston, K.J. (2004). Evaluation of different measures of functional connectivity using a neural mass model. NeuroImage, 21(2), 659-73.

- Breakspear, M., Terry, J.R., Friston, K.J. (2003). Modulation of excitatory synaptic coupling facilitates synchronization and complex dynamics in a biophysical model of neuronal dynamics. Network, 14(4), 703-32.
- David, O, Friston, K.J. (2003). A neural .mass model for MEG/EEG: coupling and neuronal dynamics.
- NeuroImage, 20(3),1743-55.
- Chawla, D., Friston, K.J., Lumer, E.D. (2001). Zero-lag synchronous dynamics in triplets of interconnected cortical areas. Neural Network, 14(6-7), 727-35.
- Chawla, D, Lumer, E.D., Friston, K.J. (2000). Relating macroscopic measures of brain activity to fast, dynamic neuronal interactions. Neural Computation, 12, 2805-2821.
- Friston, K.J., Stephan, K.M., Frackowiak, R.S.J. (1997). Transient phase-locking and dynamic correlations: Are they the same thing? Human Brain Mapping, 5, 48-57.

D. Research Support

Ongoing Research Support

- Wellcome Trust Imaging Neuroscience at the Functional Imaging Laboratory (2006) £6.74M (Ref: 079866/Z/06/Z) (with R Dolan)
- Wellcome Trust Principle Research Fellowship. Functional architectures in the brain (2009-2019) £2.48M (Ref: 088130/Z/09/Z)

Completed Research Support

- Wellcome Senior Research Fellowship in Clinical Science (1994-1999) £353K (Ref: 040795). Supplement (supporting Dr. E Lumer) £84,507
- Wellcome Trust (1999-2004) Program Grant (Principal Research Fellowship); £1M (Ref: 56750/CH/MB/Ic)
- Wellcome Trust (1999-2004) Core Support Grant for Functional Imaging Laboratory £7M (Ref: 037830/Z/95/C/JRS/KM/JAT) (Co-applicant)
- Wellcome Trust (Prize Studentship, Lucy Lee) (2000) £58K (Ref: 065995/Z/01/Z/KS/KD/fh)
- Wellcome Trust Joint Infrastructure Grant. Magnetoencephalography (MEG) facility UCL (2001) £2.7M. Co-applicant (awarded with RSJ Frackowiak, C Price, R Turner, C Frith and R Dolan)
- Wellcome Trust (International Research Fellowship James Kilner) (2003) £48K (Ref: 061548/C/00/Z)
- Wellcome Trust Programme Grant. Modelling functional brain architectures (2004-2009) £555K (Ref: 056750/Z/99/B)
- Wellcome Trust Block Access Grant for Functional Neuroimaging (2004-2006) £1.8M (with R Dolan)