Professor David John Hawkes
PhD, FMedSci, FREng, FinstP, CPhys

Current Post: Professor of Computational Imaging Science, UCL, Gower Street, London, WC1, UK
Date of appointment: January 2005
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Research interests

His current research interests encompass image matching, data fusion, visualisation, shape representation, surface geometry and modelling tissue deformation promoting medical imaging as an accurate measurement tool and image guided interventions. He is principal investigator of an EPSRC Programme grant "Intelligent Imaging: Motion, Form and Function across Scale", he is co-Director of the EPSRC and CRUK funded Comprehensive Cancer Imaging Centre, co-I of an NIHR grant with Steve Halligan (Radiology) on computer assisted detection of colon cancer. He holds 2 EU FP7 grants on breast surgery (PICTURE) and imaging breast cancer risk (PRISM) and an EPSRC grant to study breast stromal tissue microstructural changes and cancer risk. He is currently supervisor or co-supervisor of 10 PhD students. He is author or co-author of over 300 peer reviewed scientific publications.

Professional History

2010-	Programme Director "Intelligent Imaging: Motion, Form and Function across Scale", £5.8M EPSRC Programme joint between KCL, Imperial, Institute of Cancer Research and UCL
2010-2013	Member of MICCAI Board
2008-	Co-Director UCL/KCL Comprehensive Cancer Imaging Centre (£10M EPSRC/CRUK joint Programme UCL and KCL, renewed 2013 for a further 5 years with £8M)
2005 -	Director, Centre for Medical Image Computing, Faculty of Engineering, UCL
2005-2008	Founder Director Ixico Ltd.
2003-2007	Director, EPSRC/MRC IRC on Medical Images and Signals (£8M joint Oxford, Manchester, Imperial, KCL and UCL)

2002-2004	Chairman Division of Imaging Sciences, KCL
Jul-Sep 99	Visiting Professor, Johns Hopkins University, Baltimore, USA
1998 -	Professor of Computational Imaging Science, KCL, University of London
1993-98	Reader in Radiological Sciences, UMDS, Guy's Hospital, London
1988-93	Senior Lecturer, UMDS
1981-88	Senior then Principal Physicist, St George's Hospital, London
1978-81	Research Associate University of Surrey and Institute of Cancer Research
1976-78	Basic Grade Physicist, Southampton

Awards and degrees

2011	Fellow of the Academy of Medical Sciences
2009	UK National Institute of Healthcare Research Senior Investigator
2009	Fellow of the MICCAI Society
2008	"The Crookshank Lecture and Medal", Royal College of Radiologist, May
2007	Fellow of the British Institute of Radiology
2006	"Wilhelm Conrad Roentgen Honorary Lecture", European Congress of Radiology, Vienna
2002	Fellow of the Royal Academy of Engineering (FREng)
2001	"The John Mallard Lecture", University of Aberdeen, May
1998	"Silvanus Thompson Memorial Lecture" Eponymous Lecture, British Institute of Radiology
1997	Fellow of the Institute of Physics (FInstP) and Chartered Physicist (CPhys)
1982	PhD Surrey University "X-ray Attenuation Coefficient and Application to CT"
1975	MSc Radiobiology, Birmingham
1974	BA (Oxon) Natural Sciences (Physics), Oxford University

Current grants

(Over £64M of grant funding obtained over 20 years with 90 grants, all as PI unless indicated)

EPSRC Centre for Doctoral training in Medical Imaging, 2014-2022, PI Ourselin,

Wellcome/EPSRC Challenge Engineering, Image Guided Fetal Surgery, 2013-2020, £11M (PI Seb Ourselin, co-I Hawkes)

EPSRC and CRUK: KCL-UCL Comprehensive Cancer Imaging Centre, £7.3M 2013-2018 (joint PI with Tony Ng (KCL),

NIHR Senior Investigator award £15k pa

EPSRC Medical Imaging Markers of Cancer Initiation, Progression and Therapeutic Response £818k Mar 2013 – Feb 2016

EU FP7 VPH "Personalized Predictive Breast Cancer Therapy through Integrated Tissue Micro-Structure Modeling (PRISM)" Euros 738k (UCL share of Euros 5.2M)

EU FP7 VPH "Patient Information Combined for the Assessment of Specific Surgical Outcomes in breast cancer (PICTURE)" Euros 735k (UCL share of Euros 2.16M) (Keshkar PI, Hawkes co-I)

Health Innovation Challenge Fund (HICF-T4-317), a parallel funding partnership between the Wellcome Trust and the Department of Health, "Smart Laparoscopic Liver Resection", £1,853,377, Nov 2012- Oct 2015 (PI Brian Davidson, Hawkes co-I).

Wellcome/DoH HICF "Health Innovation Challenge Fund (HICF-T4-310), a parallel funding partnership between the Wellcome Trust and the Department of Health, "SmartTarget", £1.85M , Nov 2012- Oct 2015 (joint PIs Mark Emberton, Dean Barratt, Hawkes co-I).

EPSRC Programme Grant – Intelligent Imaging: Motion, Form and Function across Scale, £5.7M, June 2010- May 2015
EPSRC and CRUK: KCL-UCL Comprehensive Cancer Imaging Centre, £8M 2008-2013 (joint PI with Tony Ng (KCL), Phil Blower (KCL))

NIHR HTA: An evaluation of multi-parametric magnetic resonance imaging in the diagnosis of prostate cancer. £1.7M, 2010-2014, (PI Mark Emberton)

Selected most cited journal publications from over 300 refereed publications (50 in last 2 years)

1. Hill DLG, Batchelor PG, Holden M, Hawkes DJ "Medical image registration." *Phys Med Biol* 46(3): R1-R45. 2001

2. Holden M, Hill DLG, Denton ERE, Jarosz JM, Cox TCS, Goody J, Rohlfing T, Hawkes DJ. Voxel similarity measures for 3D serial MR image registration *IEEE trans Med. Imag*. 19(2):94-102 2000

3. Rueckert D, Sonoda LI, Hayes C, Hill DLG, Leach MO, Hawkes DJ. Non-rigid Registration using Free-Form Deformations: Application to Breast MR Images *IEEE Trans. Medical Imaging* 18(8): 712-721 1999

4. Studholme C, Hill DLG, Hawkes DJ. An overlap invariant entropy measure of 3D medical image alignment. *Pattern Recognition* 32:71-86 1999

5. Penney GP, Weese J, Little JA, Desmedt P, Hill DLG, Hawkes DJ. A comparison of similarity measures for use in 2D-3D medical image registration *IEEE Trans. Med. Imag* 17: 586-595 1998

6. Maurer CR Jr, Hill DLG, Martin AJ, Liu H, McCue M, Rueckert D, Lloret D, Hall WA, Maxwell RE, Hawkes DJ, Truwit CL. Investigation of intraoperative brain deformation using a 1.5T interventional MR system: preliminary results *IEEE Trans. Med. Imag*. 17:817-825 1998

7. West J, Fitzpatrick JM, Hawkes DJ, et al. (1997) Comparison and evaluation of retrospective intermodality image registration techniques. *J Comput Assist Tomogr* 21, 554-66

8. Studholme C, Hill DLG, Hawkes DJ. (1997) Automated 3D registration of MR and PET brain images by multi-resolution optimisation of voxel similarity measures. *Med Phys* 24, 25-36

9. Studholme C, Hill DLG, Hawkes DJ. (1996) Automated 3D Registration of MR and CT Images of the Head. *Medical Image Analysis* 1, 163-75

10. Holden M, Hill DLG, Denton ERE, Jarosz JM, Cox TCS, Goody J, Rohlfing T, Hawkes DJ. Voxel similarity measures for 3D serial MR image registration IEEE trans Med. Imag. 19(2):94-102 2000

11. Rezavi, R., Hill, D.L.G., Keevil, S.F., Miquel, M.E., Rhode, K., Barnett, M., Muthurangu,V., Hegde, S., Van Vaal, J., Hawkes, D.J., Baker, E., "Magnetic resonance guided cardiac catheterisation in children and adults with congenital heart disease", Lancet 2003; 362:1877-1882

12. Penney,G.P., Blackall,J.M., Hamady, M., Sabharwal, T., Adam, A., Hawkes, D.J. Registration of Freehand 3D Ultrasound and Magnetic Resonance Liver Images. Medical Image Analysis 2004; 8: 81-91

13. Schnabel, J.A., Tanner, C., Castellano-Smith, A.D., Degenhard, A., Leach, M.O., Hose, D.R., Hill, D.L.G., Hawkes, D.J. Validation of Non-Rigid Image Registration using Finite Element Methods: Application to Breast MR Images IEEE Transactions on Medical Imaging 2003; 22(2):238-247

14. Crum, W.R., Griffin, L.D., Hill, D.L.G., Hawkes, D.J. Zen and the Art of Medical Image Registration: Correspondence, Homology and Quality. NeuroImage 2003 20:1425–1437

15. Hill DLG, Hawkes DJ, Crossman JE, Gleeson MJ, Cox TCS, Bracey EECML, et al. (1991) Registration of MR and CT images for skull base surgery using point-like anatomical features*. Br J Radiology* 64, 1030-5

16. Jackson DF, Hawkes DJ. (1981) X-Ray Attenuation Coefficient of Elements and Mixtures *Phys Rep (Phys Rep C)* 70, 169-223