# UK–Japan symposium on medical imaging and artificial intelligence

23 January 2017
London, UK

# Chairs and Speakers

## co-Chairs

- **Professor Kensaku Mori**, Information Technology Centre and Department of Media Science, Graduate School of Information Science, Nagoya University
- **Professor David Hawkes FMedSci**, Centre for Medical Imaging and Computing, University College London

## Invited Speakers

- **Professor Daniel Rueckert**, Department of Computing, Imperial College London
- **Professor Hideaki Haneishi**, Centre for Frontier Medical Engineering, Chiba University
- **Professor Janaina Mourao-Miranda**, Max Planck UCL Centre for Computational Psychiatry and Ageing Research, University College London, UK
- **Dr Miyuki Uematsu**, Division of Medical Devices, National Institute of Health Sciences, Japan
- **Dr Jorge Cardoso**, Centre for Medical Imaging and Computing, University College London
- **Professor Makoto Hashizume**, Centre for Advanced Medical Innovation, and Department of Advanced Medical Initiatives, Faculty of Medical Sciences, Kyushu University, Japan
- **Dr Pearse Keane**, Moorfields Eye Hospital NHS Foundation Trust and UCL Institute of Ophthalmology

# Meeting aims and format

This one-day symposium has been jointly arranged by the UK Academy of Medical Sciences (AMS) and the Japanese Society for the Promotion of Science (JSPS).

Its main objective is to bring together leading experts from Japan and the UK to discuss the current research landscape of medical imaging and the contributions of artificial intelligence to this field. The symposium will also provide an opportunity to reflect on the regulatory and ethical considerations needed to support the effective and impactful adoption of such technologies.

The event will be followed by a networking reception to facilitate greater contact and collaboration between the UK and Japan, and we are grateful to the Japanese Embassy for hosting this reception.

News article summaries will be made available after the event in both English and Japanese.

The meeting agenda and format has been informed by co-Chairs **Professor David Hawkes FMedSci**, Professor of Computational Imaging Science, University College London and **Professor Kensaku Mori**, Director of Information Technology Centre and Department of Media Science, Nagoya University. The Academy and JSPS are most grateful to the co-Chairs for their work.

This symposium booklet contains a meeting agenda, biographies of the speakers and abstracts of their presentations, and a full attendee list.

**WiFi details**
Name: 41 Portland Place
Password: Portland1

@acmedsci
#JapanUKimaging

# Meeting agenda

| | |
|---|---|
| 09.00 – 09.30 | Registration |
| 09.30 – 09.40 | **Welcome to symposium**<br>• Professor Nobuo Ueno, Director, Japan Society for the Promotion of Science, London office<br>• Professor George Griffin FMedSci, Vice-President International, Academy of Medical Sciences |
| 09.40 – 09.50 | **Introduction to symposium**<br>• Professor David Hawkes FMedSci, Professor of Computational Imaging Science, University College London, UK |
| 09.50 – 10.20 | **Keynote presentation: perspectives from the UK**<br>Chair: Professor David Hawkes FMedSci<br>• Professor Daniel Rueckert, Head of the Department of Computing, Imperial College London, UK |
| 10.20 – 10.50 | **Keynote presentation: perspectives from Japan**<br>Chair: Professor David Hawkes FMedSci<br>• Professor Kensaku Mori, Director of Information Technology Centre and Department of Media Science, Nagoya University, Japan |
| 10.50 – 11.20 | Refreshment break |
| 11.20 – 12.40 | **Scientific presentations**<br>Chair: Professor Kensaku Mori<br>• Professor Hideaki Haneishi, Director of the Centre for Frontier Medical Engineering, Chiba University, Japan<br>• Professor Janaina Mourao-Miranda, Research Professor and Wellcome Trust Senior Research Fellow at University College London, UK<br>• Dr Miyuki Uematsu, National Institute of Health Sciences, Japan<br>• Dr Jorge Cardoso, Lecturer in Quantitative Neuroradiology, Centre for Medical Imaging and Computing, University College London, UK |
| 12.40 – 14.00 | Lunch |

| | |
|---|---|
| 14.00 – 14.40 | **Perspectives on regulatory and ethical considerations**<br>Chair: Professor David Hawkes FMedSci<br>• Professor Makoto Hashizume, Department of Advanced Medical Initiatives, Kyushu University, Japan<br>• Dr Pearse Keane, NIHR Clinician Scientist, Institute of Ophthalmology, University College London, UK |
| 14.40 – 14.50 | Break |
| 14.50 – 16.20 | **Panel discussion**<br>Chair: Professor Kensaku Mori<br>• All speakers to discuss shared learning, challenges and opportunities, and ways forward. |
| 16.20 – 16.30 | **Conclusion**<br>• Professor David Hawkes FMedSci, Professor of Computational Imaging Science, University College London, UK |
| 16.30 – 18.00 | Symposium close and transport to the Japanese Embassy |
| 18.00 – 20.00<br>18.00 – 18.20<br><br><br><br><br><br><br><br><br>18.20 – 18.25<br><br>18.25 – 18.45 | **Reception and networking at the Japanese Embassy**<br>• Opening remarks by:<br>o Ambassador Koji Tsuruoka, Embassy of Japan in the UK<br>o Professor Nobuo Ueno, Director, Japan Society for the Promotion of Science, London office<br>o Professor Sir Robert Lechler PMedSci, President, Academy of Medical Sciences<br>• Summary of symposium discussions by Professor David Hawkes FMedSci, co-Chair<br>• This reception will also include short presentations regarding funding opportunities to facilitate UK–Japan collaboration from:<br>o Ms Chika Itoi, Deputy Director, Japan Society for the Promotion of Science<br>o Mr Martin Gadsden, Japan Agency for Medical Research and Development<br>o Dr Amanda Vuong, Royal Society<br>o Dr Theresa Meacham, Biotechnology and Biological Sciences Research Council (BBSRC) |
| 20.00 | Reception close |

# Co-Chair biographies

## Professor David Hawkes FMedSci

Professor Hawkes has 43 years' experience in medical imaging research, having worked closely with healthcare providers and industry to translate novel imaging science. He has over 400 peer-reviewed publications with an h-index of 71 (Google Scholar). He co-founded IXICO plc. and advises a number of start-ups.

He was elected FMedSci (2011), FREng (2002), FInstP (1997), FIPEM (1993). He was awarded the MICCAI Enduring Impact Award (2017), NIHR Senior Investigator (2009), the Royal College of Radiologists' Crookshank Medal (2008) and the Wilhelm Conrad Roentgen Honorary Lecture at the European Congress of Radiology (2006). He currently advises the programme in Computational Anatomy in Japan and the IHU in Image-guided Minimally Invasive Surgery in France.

## Professor Kensaku Mori

Kensaku Mori is a professor of Information and Communications at the Graduate School of Information Science, Nagoya University and is the Director of the Information Technology Center also at Nagoya University.

He received his MEng (Information Engineering) and PhD (Information Engineering) from Nagoya University in 1994 and 1996 respectively. He started his academic career in 1997 as an assistant professor at Nagoya University and was promoted to associate professor in 2001 at Nagoya University before obtaining full professorship in 2009 also at Nagoya University. In 2016, he was appointed as the Director of the Information Technology Center of Nagoya University and in 2017 was appointed as a professor of the Department of Intelligent Systems, Graduate School of Informatics also at Nagoya University.

# Speaker biographies

## Learning clinically useful information from medical images

Professor Daniel Rueckert,
Department of Computing,
Imperial College London, UK
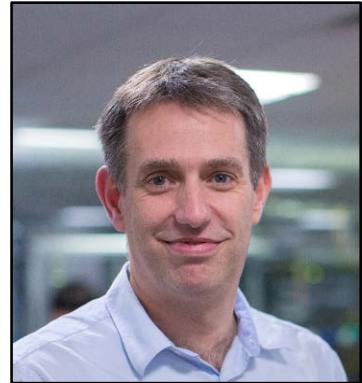
### Abstract

This talk will focus on the convergence of medical imaging and machine learning techniques for the discovery and quantification of clinically useful information from medical images. The first part of the talk will describe machine learning techniques that can be used for image reconstruction, e.g. the acceleration of MR imaging, and image super-resolution. The second part describes recent machine learning approaches such as deep learning for image segmentation and image classification with particular application to neurological and cardiovascular diseases as well as applications in neonatal and fetal imaging.

### Biography

Professor Daniel Rueckert is Head of the Department of Computing at Imperial College London. He received a M.Sc. in Computer Science from the Technical University Berlin and a Ph.D. from Imperial College London. He has published more than 450 journal and conference articles in the area of medical imaging and machine learning. Professor Rueckert is an associate editor of IEEE Transactions on Medical Imaging, a member of the editorial board of Medical Image Analysis and Image & Vision Computing. He has been elected as a Fellow of the MICCAI society, Fellow of the Royal Academy of Engineering and Fellow of the IEEE.

# Speaker biographies

## Medical procedure assistance based on machine learning – current status and future direction

Professor Kensaku Mori
Information Technology Centre and
Department of Media Science,
Graduate School of Information Science,
Nagoya University, Japan

### Abstract
In this presentation, we introduce the current status of computer assisted diagnosis and surgery based on machine learning and artificial intelligence and talk about the future directions of medical imaging research using machine learning techniques. Applications in abdominal imaging will also be presented. Machine learning or artificial intelligence has impacted on medical imaging research for many years, which requires superior performance in visual pattern recognition. Currently work on deep neural networks or convolutional neural networks are making a big impact on medical procedures using medical images. In this presentation, we would like to summarize advances in machine learning or pattern recognition and discuss several applications in the abdominal medical imaging areas. We will introduce automated pathological diagnosis of endocytoscopic images of colonic polyps, automated multi-organ segmentation of abdominal organs, automated anatomical labeling of abdominal blood vessels and branch pattern generation and surgical applications of these techniques will be demonstrated. This presentation will also highlight the current limitations of these techniques and future directions for development. Through this presentation we would like to enhance discussions on the differences between human-readable knowledge and machine-readable and human-unreadable knowledge acquired by machine learning processes. Knowledge acquirement from learning will be key phrase in this discussion.

### Biography
Full biography provided on page 6.

# Speaker biographies

## Medical Image Application of Robust Principal Component Analysis

Professor Hideaki Haneishi
Center for Frontier Medical Engineering,
Chiba University, Japan

### Abstract

Robust principal component analysis (RPCA) is a useful tool for processing a motion picture. It can divide a motion picture into sparse component and low-rank component. We use this tool in some research handling medical images. One example is its use in interventional radiology (IVR) with a catheter. In the conventional IVR procedure in abdominal regions, digital subtraction angiography (DSA) is conducted to extract vessel information under X-ray fluoroscopy. In order to obtain a fine DSA image, however, patients have to hold their breath. We have added some new constraints to the conventional RPCA and applied it to X-ray fluoroscopy under free breathing. Then the vessel pattern stained by the injected contrast media was successfully assigned to the sparse component. The proposed method was applied to 12 patient data sets and in all cases the effectiveness was confirmed through quantitative evaluation. We also applied RPCA to microcirculation images. In this experiment we made a side-stream dark field camera and took the images of the small intestine of rats. Although the captured motion picture was low-contrast, the images after RPCA application presented much higher contrast. These images were used to calculate the velocity of blood flow in each vessel.

### Biography

Professor Haneishi received his MS degree in 1987 and his PhD degree in 1990 from the Tokyo Institute of Technology. He joined Chiba University in 1990 as a research associate. He was a visiting research scientist at the Department of Radiology, University of Arizona, from 1995-1996. He has been a full professor of the Center for Frontier Medical Engineering (CFME) since 2007. Currently he is also a director of CFME. He contributed to Japan's national project titled "Natural Vision" from 2001 to 2006 as a sub-leader. His main research interests include medical image processing and color image processing. He is a coordinator of the project "International Network of Multimodal Medical Engineering for Precision Medicine" (2017-2021) funded by the Japan Society for the Promotion of Science (JSPS) Core-to-Core Programme.

# Speaker biographies

## Machine learning and neuroimaging in mental health

Professor Janaina Mourao-Miranda
Max Planck UCL Centre for Computational Psychiatry
and Ageing Research,
University College London, UK

### Abstract

Over the last decade machine learning techniques have been successfully applied to clinical neuroimaging data leading to a growing body of research focused on diagnosis and prognosis of mental health disorders. With the technological advances enabling acquisition of large volumes of patient data, new machine learning models that can combine information from neuroimaging techniques with complementary knowledge from clinical assessments and general patient information have the potential to identify reliable biological markers and improve patient characterization in psychiatry. In this talk I will review some examples of how machine learning techniques have been applied to investigate clinical problems in neuroimaging, discuss the main challenges faced by these applications and outline potential alternatives to overcome them.

### Biography

Professor Mourao-Miranda is a Research Associate and Wellcome Trust Senior Fellow at the Computer Science Department, UCL. She leads the Machine Learning and Neuroimaging Lab at UCL. Professor Mourao-Miranda has a background in Electronic Engineering. She then obtained an MSc degree in Computer Science in 1998 and a PhD in Neuroscience in 2002, both from the Federal University of Rio de Janeiro (Brazil). After a period of postdoctoral work at the Department of Neural Computation at Siemens, Munich, Germany (2003–2005) and at the Institute of Psychiatry, King's College London, UK (2005–2009) she was awarded a Wellcome Trust Research Career Development Fellowship in 2009 and a Wellcome Trust Senior Research Fellowship 2013 to further develop her research at the Computer Science Department at UCL. Over the past years, her research has involved developing and applying machine learning approaches to neuroimaging data, in particular focusing on neuroimaging based diagnostic and prognostic models. Her current research focuses on developing machine-learning models to investigate complex relationships between neuroimaging data and multidimensional descriptions of mental health disorders.

# Speaker biographies

## A Navigation System for Safer Surgery – Lessons Learned from Aortic Vascular Surgery

Dr Miyuki Uematsu
Division of Medical Devices,
National Institute of Health Sciences, Japan

### Abstract

In thoracoabdominal aneurysm repair, it has already been established that maintaining sufficient postoperative blood flow to the spine is an efficient approach, both in terms of achieving a positive outcome of the surgery and avoiding paraplegia as a sequela. Many surgeons have investigated potential solutions to eliminate, or lessen the likelihood of this sequela. Some researchers have proposed that only the most important artery, connected to the Adamkiewicz artery, must be reconstructed in order to achieve a positive outcome of the repair. However, as it was difficult to recognize anatomical orientation during surgery, in 2004 our team set out to develop a surgical navigation system, with the goal of overcoming this problem. The system has been utilized in 106 clinical cases of thoracoabdominal aortic aneurysm surgery, to date, in order to support surgeons identifying orientation. According to the results, the maintenance of the patency of the intended artery has confirmed avoidance of paraplegia (38/38), although the closure of the target artery indicated a potential of paraplegia to be 16% (4/25). In this presentation, we will show the clinical benefits of the surgical navigation system we have developed and how the use of which has led to safer surgical procedures and outcomes.

### Biography

Dr. Miyuki Uematsu received her PhD from Waseda University in 2007. She then started working at the National Institute of Health Sciences in Japan. Her work at present focuses on the regulatory science of medical devices, in order to contribute to the development and distribution of safer, more effective and innovative devices. She is involved in developing guidelines for approval of devices in consideration of Japanese and international standards. Her current research topics include 'molecular simulations as a tool to promote the development of new materials for medical devices' and 'a navigation system for safe surgery to prevent serious sequelae'. Her immediate interest is to qualify the clinical benefits of her own system.

# Speaker biographies

## Quantitative Neuroradiology: Machine Learning for Improved Patient Care

Dr Jorge Cardoso,
Centre for Medical Imaging and Computing,
University College London, UK

### Abstract
Recent developments in artificial intelligence and the availability of large scale medical imaging datasets allow us to learn how the human brain truly looks like from a biological, physiological, anatomical and pathological point-of-view. This learning process can be further augmented by diagnostic and radiological report data available in clinical systems, providing an integrated view of the human interpretation of medical imaging data. This talk will present how these models can learn from big and unstructured data and then be used as tools for precision medicine, where we aim to translate advanced imaging technologies and biomarkers to clinical practice in order to streamline the clinical workflow and improve the quality of care. This process of technical translation requires deep algorithmic integration into the radiological workflow, fully automated image processing, quality control and assurance, extensive validation on clinical grade data, and the deployment of an automated reporting system that summarizes a complex set of imaging biomarkers, highlighting the presence of abnormalities.

### Biography
Dr Cardoso has a BSc in Biomedical Engineering (2006) and an MSc in Medical Electronics and Signal Processing for Biomedical Engineering (2008) from the Universidade do Minho, Portugal, followed by a PhD (2008-2012) and PostDoc (2012-2015) in medical image analysis and biomarker development between CMIC and the Dementia Research Centre at UCL. In June 2015 he was appointed Lecturer in Quantitative Neuroradiology at the Translational Imaging Group, part of CMIC, in collaboration with the National Hospital for Neurology and Neurosurgery, working on translating and integrating artificial intelligence-based quantitative imaging biomarkers to the clinical environment.

# Speaker biographies

## Perspectives on regulatory and ethical considerations on CAD with AI

Professor Makoto Hashizume
Centre for Advanced Medical Innovation, and
Department of Advanced Medical Initiatives,
Faculty of Medical Sciences,
Kyushu University, Japan

## Abstract

Currently a medical device for computer aided detection (CADe) and diagnosis (CADx) is commercially available. However there are some ethical or clinical problems to be solved. The Japanese government, including the Pharmaceutical and Medical Device Agency (PMDA), the Ministry of Health, Labour and Welfare and the Ministry of Economy, Trade and Industry, is now making guidelines on developing products with Artificial Intelligence (AI) capabilities and assessment of this for approval as a medical device. The main three problems apparent from this process are 1) development of a black box in the processing of AI 2) continued change of function after the device reaches the market and 3) reliability of the database. Although it is currently feasible to provide an accurate outcome faster by using a product with AI capability than by using a conventional computer aided product, the algorithm or judgment rationale is unclear in AI. Also, while AI has the ability of self-learning or self-data collection so that it is possible the function of the product can change once it is on the market, we must consider the high risk of unexpected events and impact on the patient. Discussion during this symposium of the basic concept and possible risk management could be the next step to helping address these issues.

## Biography

Professor Makoto Hashizume graduated from Kyushu University School of Medicine in 1979. He is currently the director of the Centre for Advanced Medical Innovation, and Chairman and Professor at the Department of Advanced Medical Initiatives, Faculty of Medical Sciences, Kyushu University. He works on the development of minimally invasive surgical robotic systems. He is a principle investigator of Japan's national project on Multidisciplinary Computational Anatomy which is funded by the MEXT Grant-in-aid for Scientific Research on Innovative Areas. He is also the leader of a working group developing the guidelines for assessment of CAD with AI at PMDA.

# Speaker biographies

## Artificial Intelligence in Ophthalmology – the Moorfields – DeepMind collaboration

Dr Pearse A. Keane,
Moorfields Eye Hospital, NHS Foundation Trust
and UCL Institute of Ophthalmology, UK

### Abstract
Ophthalmology is among the most technology-driven of all the medical specialties, with treatments utilizing high-spec medical lasers and advanced microsurgical techniques, and diagnostics involving ultra-high resolution imaging. Ophthalmology is also at the forefront of many trailblazing research areas in healthcare, such as stem cell and gene therapies. In July 2016, Moorfields Eye Hospital announced a collaboration with Google DeepMind, arguably the world's leading artificial intelligence company. This collaboration involves the sharing of >1,000,000 anonymised retinal scans with DeepMind to allow for the automated diagnosis of diseases such as age-related macular degeneration (AMD) and diabetic retinopathy (DR). In my presentation, I will describe the technical, ethical, governance, and regulatory challenges of establishing this collaboration.

### Biography
Pearse A. Keane, MD, FRCOphth, is a consultant ophthalmologist at Moorfields Eye Hospital, London and an NIHR Clinician Scientist, based at the Institute of Ophthalmology, University College London (UCL). Dr Keane specialises in applied ophthalmic research, with a particular interest in retinal imaging and new technologies. In April 2015, he was ranked no. 4 on a worldwide ranking of ophthalmologists under 40, published in "the Ophthalmologist" journal (https://theophthalmologist.com/the-power-list-2015/). In 2016, he initiated a formal collaboration between Moorfields Eye Hospital and Google DeepMind, with the aim of applying machine learning to automated diagnosis of optical coherence tomography (OCT) images.

# Attendees

- Dr Kinjiro Amano, School of Electrical and Electronic Engineering, University of Manchester
- Ms Naomi Anderson, MRC London Institute of Medical Sciences, Imperial College London
- Dr Edward Apeh, Department of Computing and Informatics, Bournemouth University
- Professor Simon Arridge, Centre for Medical Imaging and Computing, University College London
- Professor Alexander Balinsky, School of Mathematics, Cardiff University
- Professor Sir Michael Brady FRS FREng FMedSci, Department of Oncology, University of Oxford
- Ms Elizabeth Burgnon, Neuroepidemiology and Ageing Research Unit, School of Public Health, Imperial College London
- Dr Stephen Cameron, Department of Computer Science, University of Oxford
- Dr Thomas Carter, Scheme Manager, The Royal Society
- Dr Alex Chen, Faculty of Medicine, Imperial College London
- Professor Ke Chen , Centre for Mathematical Imaging Techniques, Department of Mathematical Sciences, University of Liverpool
- Dr Yan Chen, Applied Vision Research Centre, Department of Computer Science, Loughborough University
- Dr Martin Cohn, School of Public Health, Imperial College London
- Dr Benyamin Delder, Neurointerventional Research Center, The Johns Hopkins Hospital
- Professor Erika Denton, Norfolk & Norwich University Hospital
- Dr Leng Dong, Applied Vision Research Centre, Department of Computer Science, Loughborough University
- Professor David Edwards FMedSci, Department of Perinatal Imaging and Health, King's College London and St Thomas' NHS Foundation Trust
- Dr Paul Expert, Department of Mathematics, Imperial College London
- Dr Shereen Fouad, School of Computing, Engineering and Built Environment, Birmingham City University
- Mr Martin Gadsden, Japan Agency for Medical Research and Development (AMED), London office
- Professor Mohammad Ghavami, Biomedical Engineering and Communications Research Centre, School of Engineering, London South Bank University
- Dr Ben Glocker, Biomedical Image Analysis Group, Department of Computing, Imperial College London

- Dr Mark Gooding, Mirada Medical Ltd
- Professor Vicente Grau, Institute of Biomedical Engineering, University of Oxford
- Professor Franklyn Howe, Molecular and Clinical Sciences Research Institute, St George's, University of London
- Dr Mitsutaka Kitano, Division of Virology, Department of Pathology, University of Cambridge
- Mr Arinbjorn Kolbeinsson, Department of Epidemiology and Biostatistics, Imperial College London
- Dr Tryphon Lambrou, School of Computer Science, University of Lincoln
- Professor Gabriel Landini, School of Dentistry, College of Medical and Dental Sciences, University of Birmingham
- Dr Helga Laszlo, Cancer Division, University College London Hospitals NHS Foundation Trust
- Dr Chi Hieu Le, Faculty of Engineering and Science, University of Greenwich
- Ms Vee Mapunde, Colorectal Therapies Healthcare Technologies Cooperative, St James's University Hospital, Leeds
- Professor Paul Matthews OBE FMedSci, Division of Brain Sciences, Faculty of Medicine, Imperial College London
- Dr Theresa Meacham, Senior International Programme Manager, BBSRC
- Dr Ana Namburete, Institute of Biomedical Engineering, Dept. Engineering Science, University of Oxford
- Dr Andre Neves, Cancer Research UK Cambridge Institute, University of Cambridge
- Dr Van Duy Nguyen, Faculty of Engineering and Science, University of Greenwich/Institute of Biotechnology and Environment, Nha Trang University, Vietnam
- Dr Michael Packianather, School of Engineering, Cardiff University
- Dr Eleftheria Panagiotaki, Centre for Medical Imaging and Computing, University College London
- Mr Janos Papp, Optics and Photonics Research Group, Faculty of Engineering, University of Nottingham
- Professor David Porter, Institute of Neuroscience and Psychology, University of Glasgow
- Professor Nasir Rajpoot, Department of Computer Science, University of Warwick
- Dr David Laith Rawaf, School of Public Health, Faculty of Medicine, Imperial College London
- Professor Salman Rawaf, School of Public Health, Faculty of Medicine, Imperial College London
- Dr Nadja Reissland-Burghart, Department of Psychology, Durham University

- Dr Constantino Carlos Reyes-Aldasoro, Research Centre In Biomedical Engineering, University of London
- Dr Alessandro Ruggiero, Papworth Hospital NHS Foundation Trust
- Professor Julia Schnabel, Department of Biomedical Engineering, King's College London
- Mr  Syed Almaas Shah, Biomedical Engineering Research Unit, Aston University
- Dr Saeed Sharif, School of Architecture, Computing and Engineering, University of East London
- Ms Shaadi Shidfar, School of Public Health, Imperial College London
- Professor Steve Smye, National Institute of Health Research, Clinical Research Network, King's College London
- Dr Hideaki Suzuki, Graduate School of Medicine, Tohoku University
- Dr Fumi Takeuchi, Institute of Genetic Medicine, Newcastle University
- Dr Ben Thomas, Institute of Nuclear Medicine, University College London
- Dr Mathew Van de Pette, MRC London Institute of Medical Sciences, Imperial College London
- Ms Jacqueline Van Druten, School of Architecture, Computing and Engineering, University of East London
- Dr Tom Vercauteren, Department of Medical Physics and  Biomedical Engineering, University College London
- Dr Irina Voiculescu, Department of Computer Sciences, University of Oxford
- Dr  Amanda Vuong, International Grants, The Royal Society
- Dr Yinhai Wang, Quantitative Biology Department, AstraZeneca Ltd.
- Dr Steve Williams FMedSci, Centre for Neuroimaging Sciences, Institute of Psychiatry, Psychology and Neuroscience, King's College London
- Dr Nadine Wood, International Grants, The Royal Society
- Dr Julie Woodley, Faculty of Health and Applied Science–Diagnostic Imaging Stapleton, University of the West of England Bristol
- Dr Xianghua Xie, Department of Computer Science, Swansea University
- Dr Guang Yang, National Heart and Lung Institute, Imperial College London
- Dr Xujiong Ye, School of Computer Science, University of Lincoln

## Staff
- Dr Elizabeth Bohm, Head of International, Academy of Medical Sciences
- Dr Rachel Brown, International policy officer, Academy of Medical Sciences
- Professor Nobuo Ueno, Director, Japan Society for the Promotion of Science, London office
- Ms Chika Itoi, Deputy Director, Japan Society for the Promotion of Science, London office
- Ms Polly Watson, International Programme Coordinator, Japan Society for the Promotion of Science, London office

# Notes

**PERSONAL INVITATION**

The Embassy of Japan requests the pleasure of your company at the

## *Drinks Reception*

### *For the UK-Japan Symposium on Medical Imaging and Artificial Intelligence organised between JSPS and AMS*

On Tuesday, 23rd January 2018
At the Embassy of Japan, 101/104 Piccadilly, London W1J 7JT

## Programme

17:30  Doors Open

18:00  Opening Remarks
- Ambassador Koji Tsuruoka, Embassy of Japan in the UK
- Prof. Nobuo Ueno, JSPS London
- Prof. Sir Robert Lechler, AMS

18:20  Summary of today's symposium - Professor David Hawkes, UCL

18:25  Short presentations on funding opportunities
・Japan Society for the Promotion of Science (Ms Chika Itoi)
・Japan Agency for Medical Research and Development (Mr Martin Gadsden)
・Royal Society (Dr Amanda Vuong)
・BBSRC (Dr Theresa Meacham)

18:45  Networking Reception

20:00  Close

Please note that registration prior to the event is essential. Please RSVP by Monday 15th January, 2018 to Ms. Polly Watson at JSPS London: polly@jsps.org. You will be asked to present a print-out of this invitation together with photographic identification upon entry to the Embassy of Japan for security purposes, and to have your belongings scanned by security equipment. No photography is allowed inside the Embassy and no WiFi connection will be available.

**The Academy of Medical Sciences**



**JSPS**

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