

# Jason Riley

## Education

1999-2005 University College London London, UK

- PhD Light Transport in Diffusing Domains containing non-scattering spaces.
- In this work I was involved in extending and developing a forward light transport in C++ to handle novel domains. The work involved using FEM and BEM techniques as well as developing an understanding for the various ways to handle the forward problem. It also involved examining the effects of changes of parameters on the data and the implications of this in the inverse modeling problem. The project included work with the MONSTIR experimental set-up on phantom imaging.
- Involvement in teaching of Computer Graphics and Programming skills to both undergraduate and Masters students.
- Involvement in Personal and Professional Skills Development Training as a facilitator.

1998-99 University College London London, UK

- MRes Computer Vision, Image Processing, Graphics and Simulation.
- Distinctions in Mathematical Modeling Algorithms and Implementation, Graphics Modeling and Visualization, and Personal and Professional Skills in Research Practice.
- A research masters focusing on a broad introduction to the topics involved in imaging, vision and graphics. It had also had a taught component on developing the skills required to work as a researcher within a modern institution. The course also had a heavier focus on the project as part of the degree, which was, in my case work in a similar area to my PhD and in fact led to the funding for and basis of this.
- Trained as a facilitator for Personal and Professional Skills development.

1994-97 Leeds University Leeds, UK

- BEng Electronic and Electrical Engineering.
- Graduated with First Class Honours.
- Whilst the final year of my degree focused largely on Computer related topics, including a project on Genetic Algorithms, this degree has allowed a broader background in the understanding of electronic systems. This includes an appreciation for the workings of complex instruments and the interpretation of signals generated by them.

## Awards

- Elaida Faberge Prize for Control and Instrumentation Engineering. Leeds University 1997.
- UCL Graduate School PhD Scholarship for the top MRes Students of the precious year.
- FARE Award in recognition of excellence in Biomedical Research. NIH 2007.

## Experience

2005- National Institutes of Health Bethesda MD, USA

- Visiting Research Fellow
- Developing Inverse algorithms for the Lifetime Fluorescence Imaging problem.
- Judge for the 2007 NIH Post-Bac Poster Competition
- Chief Judge for the Radiology/Imaging/PET and Neuroimaging Section of the 2008 NIH FARE Awards

1997-1998      Welcom Software      Harrogate, UK

- Software Engineer
- Designing and developing large-scale financial database with simplified user interfaces.

## Publications

- Optimization of Multi-Photon Excitation Microscopy by Total Emission Detection (TED) Using a Parabolic Light Reflector. C. Combs, A. Smirnov, J. Riley, A. Gandjbakhche, J. Knutson, R. Balaban. In Press - Journal of Microscopy
- Choice of Data-Types in Time Resolved Fluorescence Enhanced Diffuse Optical Tomography. J. D. Riley, M. Hassan, V. Chernomordik, I. Gannot and A. H. Gandjbakhche. In Revision for Medical Physics.
- Fluorescence lifetime imaging system for in-vivo study. M. Hassan, J. Riley, V. Chernomordik, P. Smith, R. Pursley, S. Lee, J. Capala, and A. H. Gandjbakhche. Mol. Imaging-In Press.
- Anisotropic diffusion regularisation for diffuse optical tomography using edge prior information. A. Douiri, M. Schweiger, J. Riley and S. R. Arridge, Meas. Sci Technol. 18(1), 2007
- Time-Resolved Lifetime Fluorescence Imaging – an Inverse Model Based on Analytical Solutions. J. D. Riley, M. Hassan, V. Chernomordik, I. Gannot and A. H. Gandjbakhche, Biomedical Optics Topical Meeting, OSA, Fort Lauderdale, March 2006.
- Performance Study of Lifetime Fluorescence Imaging using TCSPC. M. Hassan, J. Riley, V. Chernomordik, I. Gannot and A. H. Gandjbakhche. SPIE 2006 Photonics West
- Diffusion Regularisation Methods of the Non-Linear Inverse Problem for Diffuse Optical Tomography. A. Douiri, M. Schweiger, J. Riley and S. Arridge, Proceedings of the 5th International Conference on Inverse Problems in Engineering: Theory and Practice, Cambridge, UK, 11-15th July 2005
- Adaptive diffusion regularization method of inverse problem for diffuse optical tomography. A. Douiri, M. Schweiger, J. Riley and S. Arridge, Proceedings - SPIE, Vol 5859, 2005
- Local diffusion regularization method for optical tomography reconstruction by using robust statistics. A. Douiri, M. Schweiger, J. Riley, and S. Arridge, Opt. Lett. **30**, 2439-2441 (2005)
- Linear and non-linear reconstruction for optical tomography of phantoms with non-scattering regions. Gibson, A P, J C Hebden, J Riley, N Everdell, M Schweiger, S R Arridge and D T Delpy, (in press), Appl. Opt.
- A method for generating patient-specific finite element meshes for head modelling. Gibson A P, J Riley, M Schweiger, J C Hebden, S R Arridge, D T Delpy (2003), Phys. Med. Biol. 48, p481-495
- Optical tomography of a realistic neonatal head phantom. Gibson A P, R Md Yusof, H Dehghani, J Riley, N Everdell, R Richards, J C Hebden, M Schweiger, S R Arridge and D T Delpy (2003), Applied Optics 42(16),

p1-8.

- Analysis of light propagation in diffusive media with non-scattering regions using 3D BEM. J. Sikora, J. Riley, S. Arridge and J. Ripoll, Technical Report, University College London, 2003.
- Light Transport in Scattering Domains containing Non-Scattering Spaces. J. Riley, E.M.C. Hillman, J.C. Hebden and S.R. Arridge, International Workshop - "Computational Problems of Electrical Engineering", p215-218, 2002, Zakopane, Poland.
- The Radiosity-Diffusion Model in 3D. J. Riley et al. Proceedings of the SPIE Vol 4431 - Photon Migration, Optical Coherence Tomography and Microscopy, p153-164, 2001.
- 3D Optical Tomography in the presence of Void Regions. J. Riley, H. Dehghani, M. Schweiger, S.R. Arridge, J. Ripoll and M. Nieto-Vesperinas, Optics Express(7,13), p462-467, 2000.

### Interests

Hill walking, Rock Climbing, Reading (Sci-Fi, Fantasy, Crime), Music