

Dr Franck P. VIDAL

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Member of EuroGraphics

CURRENT OCCUPATION

I am now starting a lectureship position at Bangor University in the School of Computer Science.

RESEARCH INTERESTS

Computer graphics, medical imaging, medical virtual environment, haptics, GPU programming, X-ray imaging, CT tomography, PET imaging, evolutionary algorithms, interventional radiology training, radiation oncology.

COMPUTING KNOWLEDGE

Medical virtual environment, computer graphics (including OpenGL, DirectX & M3G), haptics (H3D & Chai3D), image and signal processing, evolutionary algorithms, GPU programming (CUDA & OpenGL), databases, network.
Languages : C, C++, OpenGL Shading Language, Matlab, Python, Unix Shell scripts, SQL, PS/SQL, SQL+, Cobol, Prolog, L^AT_EX, HTML, XHTML, Java-script, Visual Basic, VRML, X3D.
Operating systems : Linux and Windows.

EDUCATION

- 2003-8** **PhD in computer science**, School of Computer Science, Bangor University, UK.
- 2002-3** **“Diplôme d’Études Approfondies Images & Systèmes” (DEA I&S) (5th year research master degree in image and signal processing)**, Institut National des Sciences Appliquées de Lyon (INSA - Lyon), France.
- 2001-2** **Master of Science in Computer-Aided Graphical Technology Applications (MSc CAGTA)**, School of Computing & Mathematics, University of Teesside, UK.
- 2001-2** **“Diplôme d’Université d’études Européennes Technologiques” (DUEET) (4th year degree validating one year studying in a foreign country)**, IUT Reims-Châlons-Charleville, University of Reims, France.
- 2000-1** **“Diplôme d’Université Ingénierie de l’Image” (DUIIC) (3rd year degree in Computer Graphics & Image Processing)**, IUT Reims-Châlons-Charleville, University of Reims, France.
- 1998-2000** **“Diplôme Universitaire de Technologie, spécialité informatique, option génie informatique” (DUT informatique), (2nd year degree in computer science), DUT informatique**, IUT A, University Claude Bernard Lyon 1, France.

HONORS AND AWARDS (INC. GRANTS, etc.)

- 2009** **F.P. Vidal**, M. Garnier, N. Freud, J.M. Létang and N.W. John: “Simulation of X-ray Attenuation on the GPU”. **Winner of Ken Brodliè Prize** for best paper at *Theory and Practice of Computer Graphics 2009 (TPCG 2009)*.
- 2009** F. Bello, A. Bulpitt, D.A. Gould, R. Holbrey, C. Hunt, N.W. John, S. Johnson, R. Phillips, A. Sinha, **F.P. Vidal**, P.-F. Villard and H. Woolnough: “ImaGiNe-S : Imaging Guided Needle Simulation”. **Second prize and winner of €300, in Eurographics 2009 - Medical Prize** for its innovative use of computer graphics in a complex system that is already far advanced towards clinical use.
- 2005** **F.P. Vidal**: “Developing a needle guidance virtual environment with patient specific data and force feedback”. **International Travel Grant**, from The Royal Academy of Engineering (UK), £300 to cover my personal travel and living expenses to present an article at CARS '05.
- 2003** **F.P. Vidal**, J.M. Létang and G. Peix: “PSF assessment and artefact reduction in synchrotron 3D microtomography”. **Standard European Synchrotron Radiation Facility Proposal** (France) to support non-stop experiments carried out at ESRF from 30th Apr 2004 to 2nd May 2004, including our personal travel and living expenses.

RESEARCH EXPERIENCE

- 2011**
(7 months) INRIA Saclay–Île-de-France.
Postdoctoral Research Fellow.
I joined the AVIZ Team at INRIA Saclay - le-de-France where I am investigating multi-modal visualization of neuroimaging data (inc. T2 MRI, DTI, fMRI, etc.).
- 2010-1**
(14 months) Department of Radiation Oncology, University of California, San Diego (UCSD), CA, USA.
Postdoctoral Research Fellow.
I joined the Center for Advanced Radiotherapy Technologies where I investigate the use of high performance computing in radiotherapy re-planning, particularly physically-based simulation of radiation/matter interactions using GPU programming.
- 2008-9**
(13 months) Fondation Digeo, INRIA Saclay–Île-de-France and CEA Saclay, France.
Postdoctoral Research Fellow.
I was the technical coordinator and the only developer of a technology transfer project called Tomo3D-EA. We are investigating the use of evolutionary algorithms and particle physics modelling in fully-3D tomographic reconstruction for nuclear medicine.
- 2006-8**
(25 months) School of Computer Science, Bangor University, UK.
Research Officer.
I was the technical coordinator of this large multi-disciplinary project – Development and validation of a virtual reality simulator for training in interventional radiological visceral needle puncture procedures – involving six UK universities and an industrial partner. The project was awarded 2nd place in the Euro-graphics 2009 Medical Prize “for its innovative use of computer graphics in a complex system that is already far advanced towards clinical use” (see <http://www.youtube.com/watch?v=LvHcUIXzfjw> for a YouTube video to learn more about the simulator) and it is now in its pre-commercialisation stage. Within this project, my research was focusing on graphics, haptics and visual simulation.
- 2003-8**
(4 years) School of Computer Science, Bangor University, UK.
PhD student.
Development of novel techniques for a virtual reality simulator for training in image-guided needle puncture procedures.
- 2003**
(9 months) Laboratory of Nondestructive Testing using Ionizing Radiations (CNDRI), INSA - Lyon, France.
Researcher student.
Modelling the response of an X-ray camera and developing a new method based on X-ray imaging simulations to investigate or predict artefacts in micro-tomography.
- 2002**
(15 weeks) School of Computing and Mathematics of the University of Teesside, UK.
Final year project.
Developing graphical user interface for a training tool in radiology.

MAIN TEACHING EXPERIENCE

- 2011**
(2 days) University of California, San Diego, CA, USA.
GPU Programming for Medical Physics and Medical Imaging Research.
Contributing to the organisation and presentation of a short course about GPU programming. The course is designed to train researchers and Ph.D students in medical physics and/or medical imaging to acquire skills in GPU programming.
- 2010**
(2 days) University of California, San Diego, CA, USA.
GPU Programming for Medical Physics and Medical Imaging Research.
Same as above. The course was delivered twice in December 2010.
- 2009-10**
(1 semester) École Française de l'Électronique et de l'Informatique (EFREI), Villejuif, France.
Teaching Computer Graphics algorithms and programming.
Developing new material for OpenGL lessons, tutorials and assignments for 4th year students in Computer Science, speciality Images and Virtual Reality.
- 2008-9**
(1 semester) School of Computer Science, Bangor University, UK.
Teaching computer graphics programming.
Organizing OpenGL lessons, tutorials and assignments for 3rd year students in Computer Science.

- 2007-8** School of Computer Science, Bangor University, UK.
(1 year) Teaching computer graphics programming.
Organizing OpenGL and M3G lessons, tutorials and assignments for 3rd year students in Computer Science.
- 2004-6** School of Informatics, University of Wales, Bangor, UK.
Lab. demonstration in Computer Graphics and Computer Systems for 1st year students in Computer Science or Engineering.
- 2004-6** School of Informatics, University of Wales, Bangor, UK.
Tutorials in Modelling & Analysis for 1st year students in Engineering.
- 2004-5** School of Informatics, University of Wales, Bangor, UK.
Lab. demonstration in Scientific Visualisation for 4th year students in Computer Science.
- 2003** CRESPEA, Lyon, France.
(2nd semester) Teaching computer graphics.
Developing new material for computer graphics lessons, tutorials and assignments for 4th year students in Computer Science.

CLINICAL TRAINING

- 2010-1** Department of Radiation Oncology, University of California, San Diego, CA, USA.
Performed the fluence checks (mostly at the beginning of a patient's treatment).
Performed the monthly quality assurance (QA) of Linear Accelerators (Varian 21X and Varian Trilogy).

PUBLICATIONS

Scientific Journals (peer reviewed articles)

1. P.-F. Villard, **F.P. Vidal**, C. Hunt, F. Bello, N.W. John, S. Johnson and D.A. Gould: "A prototype percutaneous transhepatic cholangiography training simulator with real-time breathing motion". *International Journal of Computer Assisted Radiology and Surgery* (November 2009), Springer. Volume 4, Issue 6, pp. 571-578. DOI: 10.1007/s11548-009-0367-1.
2. **F.P. Vidal**, N.W. John, D.A. Gould and A.E. Healey: "Simulation of Ultrasound Guided Needle Puncture using Patient Specific Data with 3D Textures and Volume Haptics". *Computer Animation and Virtual Worlds* (May 2008), John Wiley & Sons. Volume 19, Issue 2, pp. 111-127. DOI: 10.1002/cav.217.
3. **F.P. Vidal**, F. Bello, K. W. Brodlie, D. A. Gould, N. W. John, R. Phillips and N.J. Avis: "Principles and Applications of Computer Graphics in Medicine". *Computer Graphics Forum* (March 2006), Blackwell. Volume 25, Issue 1, pp. 113-137. DOI: 10.1111/j.1467-8659.2006.00822.x.
4. **F.P. Vidal**, J.M. Létang, G. Peix and P. Cloetens: "Investigation of artefact sources in synchrotron microtomography via virtual X-ray imaging". *Nuclear Instruments and Methods in Physics Research B* (June 2005), Elsevier. Volume 234, Issue 3, pp. 333-348. DOI: 10.1016/j.nimb.2005.02.003.

Book Chapters

1. D. Gould, F. Bello, N. John, S. Johnson, C. Hunt, H. Woolnough, A. Bulpitt, V. Luboz, D. King, P.-F. Villard, S. Pisharody, **F. Vidal** and A. Sinha: "Simulator development in vascular and visceral interventions". In *Innovative Cardiovascular Procedures*. Eds. Alain Branchereau, Michael Jacobs. Edizione Minerva Medica, Turin, Italy. p11-28 (2009). ISBN 88-7711-637-7.

International Conferences (peer reviewed articles)

1. P.-F. Villard, **F.P. Vidal**, F. Bello and N.W. John: "A Method to Compute Respiration Parameters for Patient-based Simulators". In *Proceeding of Medicine Meets Virtual Reality 19 - NextMed (MMVR19)*, Newport Beach, California, 9 - 11 February 2012. Studies in Health Technology and Informatics, IOS Press. To appear.

2. **F.P. Vidal**, É. Lutton, J. Louchet and J.-M. Rocchisani: "Threshold selection, mitosis and dual mutation in cooperative co-evolution: application to medical 3D tomography". In *International Conference on Parallel Problem Solving From Nature (PPSN'10)*, Krakow, Poland, 11 - 15 September 2010. Lecture Notes in Computer Science, 2011, Springer, Heidelberg. Volume 6238, pp. 414-423. DOI: 10.1007/978-3-642-15844-5_42.
3. **F.P. Vidal**, M. Garnier, N. Freud, J. M. Létang and N. W. John: "Accelerated deterministic simulation of x-ray attenuation using graphics hardware". In *Eurographics 2010 - Poster*, Norrköping, Sweden, 3 - 7 May 2010. Eurographics Association. Poster 5011.
4. **F.P. Vidal**, J. Louchet, J.-M. Rocchisani and É. Lutton: "New genetic operators in the Fly algorithm: application to medical PET image reconstruction". In *European Workshop on Evolutionary Computation in Image Analysis and Signal Processing (EvoIASP'10)*, Istanbul, Turkey, 7 - 9 April 2010. Lecture Notes in Computer Science, 2010, Springer, Heidelberg. Volume 6024, Part I, pp. 292-301. DOI: 10.1007/978-3-642-12239-2_30. **Nominated for best paper award.**
5. **F.P. Vidal**, D. Lazaro-Ponthus, S. Legoupil, J. Louchet, É. Lutton and J.-M. Rocchisani: "Artificial Evolution for 3D PET Reconstruction". In *Proceedings of the 9th international conference on Artificial Evolution (EA'09)*, Strasbourg, France, 26 - 28 October 2009. Lecture Notes in Computer Science, Springer, Heidelberg. Volume 5975, pp. 37-48. DOI: 10.1007/978-3-642-14156-0_4.
6. F. Bello, A. Bulpitt, D.A. Gould, R. Holbrey, C. Hunt, N.W. John, S. Johnson, R. Phillips, A. Sinha, **F.P. Vidal**, P.-F. Villard and H. Woolnough: "ImaGiNe-S : Imaging Guided Needle Simulation". **Second prize and winner of €300 at Eurographics 2009 - Medical Prize**, *Eurographics 2009*, Munich, Germany, 30 March - 3 April 2009, pp 5-8.
7. **F.P. Vidal**, P.-F. Villard, R. Holbrey, N.W. John, F. Bello, A. Bulpitt and D.A. Gould: "Developing An Immersive Ultrasound Guided Needle Puncture Simulator". In *Proceeding of Medicine Meets Virtual Reality 17 - NextMed: Design for/the Well Being (MMVR17)*, Long Beach, California, 19 - 22 January 2009. Studies in Health Technology and Informatics, IOS Press. Volume 142, pp. 398-400.
8. L. ap Cynydd, N.W. John, **F.P. Vidal**, D.A. Gould, E. Joeques and P. Littler: "Cost Effective Ultrasound Imaging Training Mentor for use in Developing Countries". In *Proceeding of Medicine Meets Virtual Reality 17 - NextMed: Design for/the Well Being (MMVR17)*, Long Beach, California, 19 - 22 January 2009. Studies in Health Technology and Informatics, IOS Press. Volume 142, pp. 49-54.
9. N.W. John, V. Luboz, F. Bello, C. Hughes, **F.P. Vidal**, I.S. Lim, T.V. How, J. Zhai, S. Johnson, N. Chalmers, K. Brodlie, A. Bulpitt, Y. Song, D.O. Kessel, R. Phillips, J.W. Ward, S. Pisharody, Y. Zhang, C.M. Crawshaw and D.A. Gould: "Physics-based virtual environment for training core skills in vascular interventional radiological procedures". In *Proceeding of Medicine Meets Virtual Reality 16 - parallel, combinatorial, convergent: NextMed By Design (MMVR16)*, Long Beach, California, 29 January - 1 February 2008. Studies in Health Technology and Informatics, IOS Press. Volume 132, pp. 195-197.
10. **F.P. Vidal**, N.W. John and R.M. Guillemot: "Interactive Physically-based X-ray simulation: CPU or GPU?" In *Proceeding of Medicine Meets Virtual Reality 15 - in vivo, in vitro, in silico: Designing the Next in Medicine (MMVR15)*, Long Beach, California, 6 - 9 February 2007. Studies in Health Technology and Informatics, IOS Press. Volume 125, pp. 479-481.
11. **F.P. Vidal**, N. Chalmers, D.A. Gould, A.E. Healey and N.W. John: "Developing a needle guidance virtual environment with patient specific data and force feedback". In *Proceeding of the 19th International Congress of CARS - Computer Assisted Radiology and Surgery*, Berlin, Germany, 22 - 25 June 2005. International Congress Series, Elsevier. Volume 1281, pp. 418-423. DOI: 10.1016/j.ics.2005.03.200
12. **F.P. Vidal**, F. Bello, K. Brodlie, N.W. John, D. Gould, R. Phillips and N. Avis: "Principles and Applications of Medical Virtual Environments". In *State-of-the-art Proceedings of Eurographics 2004 (EG 2004)*, Grenoble, France, 30 August - 3 September 2004, pp. 1-35.

International Conferences (invited oral presentation)

1. **F.P. Vidal**: "Developing a Virtual Environment for Training in Visceral Interventional Radiology". In *Workshop on Open Source Haptics & Applications, EuroHaptics 2008 (EH 2008)*, Madrid, Spain, 10-13 June 2008.

International Conferences (abstracts)

1. A. Sinha, K. Flood, D. Kessel, S. Johnson, C. Hunt, H. Woolnough, **F.P. Vidal**, P.-F. Villard, R. Holbray, C.M. Crawshaw, A. Bulpitt, N.W. John, F. Bello, R. Phillips and D.A. Gould: "The Role of Simulation in Medical Training and Assessment". In *Radiological Society of North America 2009 (RSNA 2009)*, Chicago, 29 November - 4 December 2009.

2. P.-F. Villard, **F.P. Vidal**, C. Hunt, F. Bello, N.W. John, S. Johnson and D.A. Gould: "Percutaneous Transhepatic Cholangiography Training Simulator with Real-time Breathing Motion". In *Proceeding of the 23rd International Congress of CARS - Computer Assisted Radiology and Surgery*, Berlin, Germany, 23 - 27 June 2009. International Journal of CARS - Computer Assisted Radiology and Surgery, Springer. Volume 4 (Suppl 1), pp. S66-S67. DOI: 10.1007/s11548-009-0326-x.

International Conferences (other presentations)

1. F. Bello, T.R. Coles, D.A. Gould, C.J. Hughes, N.W. John, **F.P. Vidal** and S. Watt: "The Need to Touch Medical Virtual Environments?" In *IEEE Virtual Reality 2010 (VR2010), Workshop on Medical Virtual Environments*, Waltham, Massachusetts, 20-26 March 2010. Available online at <http://www.hpv.cs.bangor.ac.uk/vr10-med/Papers/Bello-TheNeedToTouchMedicalVE.pdf>.
2. **F.P. Vidal**, J. Louchet, J.-M. Rocchisani and É. Lutton: "PET Reconstruction Using a Cooperative Coevolution Strategy in LOR Space". In *IEEE Nuclear Science Symposium Conference Record (IEEE NSS/MIC 2009)*, Orlando, Florida, 25 - 31 October 2009, pp. 3363-3366. DOI: 10.1109/NSSMIC.2009.5401758.
3. N.W. John, C. Hughes, S. Pop, **F.P. Vidal** and O. Buckley: "Computational Requirements of the Virtual Patient". In *Proceedings of the First International Conference on Computational and Mathematical Biomedical Engineering (CMBE09)*, Swansea, UK, 29 June - 01 July 2009, pp 140-143.
4. D.A. Gould, **F.P. Vidal**, C. Hughes, P.F. Villard, V. Luboz, N.W. John, F. Bello, A. Bulpitt, V. Gough and D.O. Kessel: "Interventional radiology core skills simulation: mid term status of the CRAIVE projects". In *Cardiovascular and Interventional Radiological Society of Europe 2008 (CIRCE 2008)*, Electronic Poster P 130, Copenhagen, Denmark , 13-17 September 2008.
5. **F.P. Vidal**, A.E. Healey, N.W. John and D.A. Gould: "Force Penetration of Chiba Needles for Haptic Rendering in Ultrasound Guided Needle Puncture Training Simulator". In *MICCAI 2008 – Workshop on Needle Steering: Recent Results and Future Opportunities*, New York, 6 September 2008. Available at <http://lcsr.jhu.edu/NeedleSteering/Workshop/Vidal.html>.
6. G. Debouzy, **F. Vidal**, D. Deprez, S. Keswani, J. Warren and P. Cosson: "Virtual Radiographic Environment". In *Eurographics 2003 Medical Prize*, 2003.

National Conferences

1. **F.P. Vidal**, M. Folkerts, N. Freud and S. Jiang: "GPU Accelerated DRR Computation with Scatter". In *AAPM Annual Meeting Issue*, Vancouver, British Columbia, Canada, 31 July - 4 August 2011. Medical Physics (June 2011). Volume 38, Issue 6, page 3455-3456. DOI: 10.1118/1.3611828.
2. **F.P. Vidal**, J. Louchet, J.-M. Rocchisani and E. Lutton: "Flies for PET: An Artificial Evolution Strategy for Image Reconstruction in Nuclear Medicine". In *AAPM Annual Meeting Issue*, Philadelphia, Pennsylvania, USA, 18-22 July 2010. Medical Physics (June 2010). Volume 37, Issue 6, page 3139. DOI: 10.1118/1.3468200.
3. **F.P. Vidal**, P.F. Villard, M. Garnier, N. Freud, J.M. Létang, N.W. John and F. Bello: "Joint Simulation of Transmission X-ray Imaging on GPU and Patient's Respiration on CPU". In *AAPM Annual Meeting Issue*, Philadelphia, Pennsylvania, USA, 18-22 July 2010. Medical Physics (June 2010). Volume 37, Issue 6, page 3129. DOI: 10.1118/1.3468154.
4. **F.P. Vidal**, M. Garnier, N. Freud, J.M. Létang and N.W. John: "Simulation of X-ray Attenuation on the GPU". In *Proceedings of Theory and Practice of Computer Graphics 2009 (TPCG 2009)*, Cardiff, UK, 17-19 June, pp25-32. ISBN 978-3-905673-71-5. **Winner of Ken Brodlie Prize for Best Paper**.
5. A. Sinha, S. Johnson, C. Hunt, H. Woolnough, **F.P. Vidal** and D. Gould: "Preliminary face and content validation of Imagine-S : the CIRSE & BSIR Experience". In *Proceedings of the UK Radiological Congress*, Manchester, UK, June 2009, p. 2.
6. P.F. Villard, P. Littler, V. Gough, **F.P. Vidal**, C. Hughes, N.W. John, V. Luboz, F. Bello, Y. Song, R. Holbrey, A. Bulpitt, D. Mullan, N. Chalmers, D. Kessel and D. Gould: Improving the modeling of Medical Imaging data for simulation, In *Proceedings of the UK Radiological Congress*, Birmingham, UK, 2-4 June 2008, p. 61.
7. P. Cosson, J. Yu Cheng, S. Keswani, G. Debouzy, D. Deprez and **F. Vidal**: "Virtual radiographic environments become a reality". In *Proceedings of the UK Radiological Congress*, Manchester, UK, 6-8 June 2004. London: British Institute of Radiology.

8. P. Cosson, G. Debouzy, D. Deprez, **F. Vidal**, S. Keswani and J. Warren: "Virtual radiographic environments: what use would they be?" In *Proceedings of 4th Annual Learning & Teaching Conference*, University of Teesside, Middlesbrough, UK, 15 January 2004.
9. P. Cosson, G. Debouzy, D. Deprez, **F. Vidal**, S. Keswani and J. Warren: "Virtual radiographic environments". In *Proceedings of 2nd Annual Post Graduate Institute of Health Conference*, University of Teesside, Middlesbrough, UK, 2003.

PhD thesis

1. 2003-8: "Simulation of image guided needle puncture: contribution to real-time ultrasound and fluoroscopic rendering, and volume haptic rendering", Bangor University, UK.

Master dissertations

1. 2002-3: "Modelling the response of X-ray detectors and removing artefacts in 3D tomography", INSA-Lyon, France.
2. 2001-2: "Constructing a GUI using 3D reconstruction for a radiographer's training tool", University of Teesside, UK.

Undergraduate dissertations

1. 2001: "Programming an user interface for the commercial video game *Frank Herbert's DUNE*", University of Reims, France.
2. 2000: "Adding an estimate of quantities and costs module, and a bill module to a database application in MS-Access", University Claude Bernard Lyon 1, France.

PROFESSIONAL ACTIVITIES

- 2011** Reviewer for Computer Graphics Forum (journal).
2011 Reviewer for Computational and Mathematical Methods in Medicine (journal).
2011 Reviewer for IEEE Transactions on Information Technology in BioMedicine (journal).
2011 Reviewer for Computer Graphics International (CGI) (conference).
2009 Scientific and technical consulting for NDRC - National Digital Research Centre, Dublin, Ireland.
At the launch of the "Haystack Project", I was invited in Dublin to share my experience about the development of medical virtual environments and haptics applications for ultrasound guided needle puncture training simulators.
- 2000-2** Freelance programmer for Inobat and Sapitec, Décines, France.
(3 seasons) *Improving databases applications in MS-Access.*

RELATED PROFESSIONAL EXPERIENCE

- 2001** Widescreen Games, Lyon, France.
(14 weeks) Work placement in computer graphics programming.
Contributing to the implementation of a commercial video game, in particular when a player has to type a code to open doors.
- 2000** Inobat and Sapitec, Vaulx-en-Velin, France.
(10 weeks) Work placement in computer science.
Improving databases applications in MS-Access.

SUPERVISION OF STUDENT PROJECTS

1. 2010: B. Ronflette (4th year at INSA Rennes, France): Computer vision for automatic patient motion detection (3 months).

2. 2009: Q. Gautier (4th year at INSA Rennes, France): Image segmentation & registration for PET reconstruction (3 months).
3. 2008: L. Glondu (4th year at INSA Rennes, France): Semi-automatic estimation of cell movements using graphics processor units (3 months).
4. 2008: M. Jessett (4th year at Bangor University, UK): Simulation of nerve stimulation for an immersive virtual environment for training nerve block (final year project).
5. 2007-8: S. Hayot (3rd year at Bangor University, UK): Developing an immersive virtual environment for training nerve block (final year project).
6. 2007: M. Garnier (3rd year at INSA Rennes, France): Physically-based simulation of x-ray on the graphics processor unit (GPU) (2 months).
7. 2006: R. Guillemot (3rd year at University of Reims, France): Implementing a ray-casting algorithm on the GPU to simulate X-ray imaging (3 months).
8. 2005: F. Griffon (4th year at INSA Lyon, France): Implementing a ray-casting algorithm to simulate X-ray imaging for a VE in interventional radiology (1 month).
9. 2005: A. Schildknecht (2nd year at University of Reims, France): Game development using the ARToolkit library (10 weeks).
10. 2005: A. Pia (2nd year at University of Reims, France): Constructing a GUI for a VE in interventional radiology training (10 weeks).

FOREIGN LANGUAGES

Fluent **English** (lived more than 6 years in UK, lived more than one year in California), basic **German**, basic **Spanish**, basic **Dutch** (lived 8 months in the Netherlands).

VOLUNTEERING

- Rock climbing leader at UCSD Outback Adventures [2010].
- Discussion leader at UCSD International Center to help students going to study in France or in UK [Summer 2010].
- Group leader [2004-7] at the Bangor University Mountain Walking Club (UMWC), the largest student club at Bangor University.
- First aider [2005-7] at UMWC.
- UMWC committee member as secretary [2005-6].
- UMWC webmaster [2005-6].
- UMWC committee member as gear officer [2004-5].
- Musician in marching bands (playing clarion and natural trumpet during folk-festivals) [1995-6, 1999-2001].

OUTSIDE INTERESTS

Rock climbing – Mountain walking – First aider – Attended an official one week mountain leader (ML) training in North Wales (Nov/Dec 2005) – Shotokan karate – Painting – Natural trumpet – Guitar.