

DR. JEROME AVONDO

PERSONAL INFORMATION



Sex: Male
Nationality: French
Age: 32
Date of Birth: 6th April 1979

SUMMARY OF SKILLS

My expertise lies in the fields of *scientific visualization*, *data quantification* and *data management* with a strong mathematical knowledge in *computational geometry*, *image processing* and *real-time rendering*. I have experience in producing commercial^[1] software, open source software^[2], contributing to a large community project^[3], organizing/delivering international meetings^[4] and have experience in working in a fast paced, deadline-oriented multi-disciplinary international environment^[5].

My main contribution in science is the continuous development and support of the VolViewer^[6]/BioptonicsViewer^[1] software package, a tool used by many biologists^{[7] [8] [9] [10] [11] [12] [13]} around the world, to visualize and quantify multi-dimensional microscopy data.

Programming Skills: C++, C, Objective-C, STL, OpenGL, GLSL, OpenCL, Qt, SDL, Java, Java 3D, Python, Matlab, VB, SQL, PHP, JS, Mediawiki, CSS, HTML5, WebGL.

Languages: **English** (mother tongue), **French** (mother tongue), **Italian** (fluent).

EDUCATION

- 2003 – 2009 **PhD in Computer Science.** *John Innes Centre, UK.*
 Thesis: Display and Analysis of Optical Projection Tomography Images.
- 2001 – 2003 **MSc by Research in Computer Graphics.** *University of East Anglia, UK.*
 Thesis: Non Photorealistic Rendering.
- 1997 – 2001 **BSc (Hons) in Applied Computing.** *University of East Anglia, UK.*
 Obtained a 2:1 Degree.
- 1985 – 1997 **International Baccalaureate Diploma.** *International School of Milan, ITALY.*
 GCSE & IGCSE. *International School of Milan, ITALY.*
- 1982 – 1985 *Redwood School, Avon Lake, OH, USA.*

AWARDS

- Nokia QT Ambassador* – Selected member for the Nokia Qt Ambassador program, 2011.
Selected Student Abstract – OMERO User & Developer meeting, Paris, 2009.
Tri-University Post Graduate Competition. – British Computer Society, 2006.
Best Presentation – University of East Anglia. Postgraduate Research Day 2005.

PRESS & MEDIA

My software has appeared in the following:

- | | |
|-------------------------------------|---|
| <i>Book front cover:</i> | Handbook of Plant Science |
| <i>Journal front cover:</i> | The Plant Cell |
| <i>Royal Microscopical Society:</i> | Infocus Magazine |
| <i>UK National Newspaper:</i> | The Gaurdian Newspaper - 3D Fruit Fly |
| <i>On the web:</i> | Triffid Nurseries / Qt Ambassador Program |

WORK EXPERIENCE

Postdoctoral Scientist

John Innes Centre

Biotechnology industry

April 2011 – present

I was a key member in a multi-disciplinary team of biologists and computer scientists to assist with the creation of biologically driven computational models of leaf and flower growth. My main role was to provide visualization, quantification and data management tools for the bio-imaging. Results from the leaf growth modelling work resulted in a *publication in Science*.

<http://rico-coen.jic.ac.uk>

Contact: [Professor Enrico Coen](#), Project Leader.

Developer & Analyst

John Innes Centre

Biotechnology industry

April 2010 – April 2011

I was the primary developer/analyst involved in trying to improve data management for bio-imaging. This involved the customization and rollout of a data management, processing and visualisation service for the institute. I deployed and promoted the use of the Open Microscopy Environment^[3], wrote image-processing pipelines for server side execution, deployed Mediawiki as a laboratory management system^[4] and made my volume rendering framework, VolViewer^[7], compatible for client-side and server-side rendering. I also organised, chaired and presented an international meeting (+70 delegates) and taught a 2 day workshop (+24 delegates) to increase awareness in the Open Microscopy Environment. The integration of VolViewer with the Open Microscopy Environment resulted in a *publication in Nature Methods*.

<http://dmbi.bbsrc.ac.uk>

Contact: [Dr Steve Rawsthorne](#), Science Operations Manager

Research Associate

University of East Anglia

Educational institution

April 2010 – April 2011

Development of software for the visualization and quantification of confocal microscopy and optical projection tomography images.

<http://cmpdartsvr1.cmp.uea.ac.uk/wiki/BanghamLab>

Contact: [Professor Andrew Bangham](#), Project Leader.

CONSULTING / PRIVATE WORK

C++ Developer

Bioptonics

Biotechnology industry

May 2005 – present

Developed the *BioptonicsViewer*, a real-time volume visualization application using C++, Qt, OpenGL & GLSL for Optical Projection Tomography data. The software was sold to Bioptonics and is currently shipping alongside the commercial scanner.

<http://www.bioptonics.com>

Contact: [Dr James Sharpe](#), Group Leader.

Consultant / Developer

John Innes Centre

Biotechnology industry

June 2006 – July 2006

Developed the methodology for capturing a 3D time-lapse dataset of the creation of a sculpture, of Charles Clarke, Member of Parliament (MP), for the 2006 British Association Festival of Science. This also involved processing and reconstructing the 3D data, creating an interactive touch-screen application and producing renderings and movies for an interactive exhibition.

http://www.makingfaces.org.uk/4d_sculpture.php

Contact: [Professor Keith Roberts](#), Emeritus Fellow.

Consultant / Developer*Start-Rite Shoes*

Apparel and Fashion

April 2007 – July 2007

Contributed towards the design and development of a foot to shoe fitting system using digital photographs by developing the *FootProfiler* software. *FootProfiler* was used to calibrate and compute measurements from 3D reconstructions of children's feet. Work on this prototype lead to the web based 'Click 'n Fit' system.

<http://www.startriteshoes.com/>

Contact: [Peter Lamble](#), Managing Director

iPhone Developer*Brainmud.com*

Software industry

May 2011 – present

Design and development of the *Photo.ArtBooth* application currently on sale in the Apple App Store. The application uses OpenGL ES and the OpenGL Shading Language to perform real time image processing (art filters) directly on the live camera feed.

<http://itunes.apple.com/us/app/photoartbooth/id445505682>

PUBLICATIONS

*Erika Kuchen, Samantha Fox, Pierre Barbier de Reuille, Richard Kennaway, Sandra.Bensmihen, **Jerome Avondo**, Grant Calder, Paul Southam, Sarah Robinson, Andrew Bangham, Enrico Coen.* Generation of Leaf Shape through Early Patterns of Growth and Tissue Polarity. **Science, 2011.**

*Chris Allan, Jean-Marie Burel, Josh Moore, Colin Blackburn, Melissa Linkert, Scott Loynton, Donald MacDonald, William J. Moore, Carlos Neves, Andrew Patterson, Michael Porter, Aleksandra Tarkowska, Brian Loranger, **Jerome Avondo**, Ingnar Lagerstedt, Luca Lianas, Simone Leo, Katherine Hands, Ron T. Hay, Ardan Patwardhan, Christoph Best, Gianluigi Zanetti, and Jason R. Swedlow.* OME Remote Objects (OMERO): a flexible, model-driven data management system for experimental biology. **Nature Methods, 2011.**

*Paul Southam, Johann Strasser, Karen Lee, **Jerome Avondo** and Andrew Bangham.* UFEEL: Using Haptics and Stereo to place landmarks in three-dimensional volumetric images. **International Conference on Image Processing 2009** – issue 7-10, p2653-p2656.

*Karen lee, **Jerome Avondo**, Harris Morrison, Lillian Blot, Margaret Stark, James Sharpe, Andrew Bangham and Enrico Coen.* Visualizing plant development and gene expression in three dimensions using optical projection tomography. **The Plant Cell, 2006** - issue 18, p2145-p2156.

REFERENCES

Name: ***Professor Enrico Coen***, FRS, NAS, CBE, Darwin Medal.
Position: *Project Leader, Cell & Developmental Biology*
Address: John Innes Centre, Norwich Research Park, Norwich, Norfolk, NR4 7UH, UK
Email: enrico.coen@bbsrc.ac.uk
Telephone: +44 (0) 1603 450 274

Name: ***Emeritus Professor Andrew Bangham***
Position: *Project Leader, School of Computing*
Address: University of East Anglia, Norwich, Norfolk, NR4 7TJ, UK
Email: a.bangham@uea.ac.uk
Telephone: +44 (0) 1603 592 245

Name: ***Professor Przemyslaw Prusinkiewicz***, SIGGRAPH Achievement Award
Position: *Professor, Department of Computer Science*
Address: University of Calgary. 2500 University Dr. NW Calgary, Alberta, T2N 1N4, CANADA.
Email: pwp@ucalgary.ca
Telephone: +1 (403) 220 5494