Dr David A. T. **Roberts**

LEADING SOFTWARE ENGINEER · COMPUTER SCIENTIST

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Experience

Pulsic	*Newcastle upon Tyne, UK*
LEADING SOFTWARE ENGINEER	*February 2017 - Present*

SOFTWARE ENGINEER	*June 2016 - February 2017*

- Software engineer in the Research and Development team for automating analog layout design
- Primarily in C++, alongside Python
- Developing and maintaining complex algorithms and data structures for use in Electron Design Automation
- Maintaining Unix and Linux code bases
- Extensive unit testing and code review process

Durham University	*Durham, UK*
DEMONSTRATOR FOR UNDERGRADUATE LABS	*September 2012 - March 2016*

- Senior Demonstrator for Java, Introduction to Programming (1st year course)
  - Taught concepts of Object Oriented Programming from ground up
  - Graded assignments and exercises contributing to final grade
- Demonstrator for Embedded C, Real-Time Computing (3rd year course)
  - Demonstrated concepts of embedded C programming on an ARM microcontroller for 3 years
  - Assisted in marking and reviewing assignments

BSkyB	*Isleworth, UK*
APPLICATION SUPPORT DEVELOPER	*September 2010 - September 2012*

- Worked in the Corporate ADM team to design and develop applications and services in C#, JavaScript.
- Technologies used include MS SQL, .Net, HTML5, RESTful APIs
- Followed product life cycles from design to deployment

Research

Innovate Computing Group	*Durham University, UK*
PHD RESEARCHER	*Sept 2012 - Match 2016*

- My research involved the evaluation of direct volume rendering, a computer graphics method for producing images from volumetric data sets, typically from the medical domain. This involved:
  - Developing a software-based volume renderer in C++ to render 3D images with a choice of reconstruction filters, sampling strategies and display output.
  - Image processing techniques that includes methods to calculate the amount of blurring and aliasing in images using OpenCV and C++
  - Analysis of depth perception with 3D images and how algorithm parameters can alter how 3D images are perceived.
  - Evaluating artefacts in 3D volume rendered images

Skills

Languages	C++, Lua, Go, C
Familiar	Java, Python, C#, Javascript
Technologies	Signal Processing, Volume Rendering, 3D Displays
	Image Processing, LaTeX, SPSS (statistics), Unix
	Boost, C++03, C++11

Publications

Reevaluating Reconstruction Filters for Path-Searching Tasks in 3D
  D A T Roberts, Ioannis Ivrissimtzis
  Computer Graphics Forum, 2016

Quality measures of reconstruction filters for stereoscopic volume rendering
  D A T Roberts, Ioannis Ivrissimtzis
  Computational Visual Media, 2016

An evaluation of reconstruction filters for a path-searching task in 3D
  David A T Roberts, Ioannis Ivrissimtzis, Nicolas S Holliman
  Sixth International Workshop on Quality of Multimedia Experience, 2014

Investigating depth perception with stereoscopic volume rendering
  D A T Roberts
  Theory and Practice of Computer Graphics, 2014

Education

Durham University   *Durham, UK*
PhD in Computer Science   *September 2012 - March 2016*

Durham University   *Durham, UK*
BSc in Computer Science   *September 2007 - July 2010*
First Class

The Sixth Form College Solhull   *Solihull, UK*
A-Levels. Computing, Maths, Ancient History   *September 2005 - July 2007*