

Dr David A. T. Roberts

SENIOR RESEARCH SOFTWARE ENGINEER · COMPUTER SCIENTIST

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Experience

Geoteric

Newcastle upon Tyne, UK

SENIOR RESEARCH SOFTWARE ENGINEER

November 2020 - Present

- Leading projects through research to production software

RESEARCH SOFTWARE ENGINEER

November 2018 - November 2020

- Optimise and move into production algorithms developed within the research team to be used in client-side applications
- Independant research and development of methods to extract geometric information from seismic data
- Working with the Software Engineering team to incorporate software engineering practices into the research process
- Development in C++, Matlab, Python

Pulsic

Newcastle upon Tyne, UK

LEADING SOFTWARE ENGINEER

February 2017 - November 2018

- Mentoring junior developers to help them become efficient software engineers
- Leading projects within the team including: optimisation problems, new analog chip design layout algorithms

SOFTWARE ENGINEER

June 2016 - February 2017

- Software engineer in the Research and Development team for automating analog layout design in C++
- Developing and maintaining complex algorithms and spatial 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

- Software developer in the Corporate ADM designing and building applications and services
- Technologies used include C#, Javascript, 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 - March 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, Matlab

Electronic Design Automation, Signal Processing, Volume Rendering, 3D Displays

Technologies Image Processing, \LaTeX , SPSS (statistics), Unix

Boost, C++03, C++11, C++14, C++17

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

PHD IN COMPUTER SCIENCE

[Durham, UK](#)

September 2012 - March 2016

Durham University

BSC IN COMPUTER SCIENCE

First Class

[Durham, UK](#)

September 2007 - July 2010

The Sixth Form College Solihull

A-LEVELS. COMPUTING, MATHS, ANCIENT HISTORY

[Solihull, UK](#)

September 2005 - July 2007