Christopher A. Harte PhD / Curriculum Vitae

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Summary

An experienced engineering researcher and communicator with development skills spanning a wide range of technologies from embedded systems on FPGAs through to high-level software design in object-oriented and functional programming paradigms. Adept at applying abstract thinking in problem analysis to find and implement simple, elegant technical solutions. Enjoys learning new languages and technologies and sharing knowledge with others. Brings creativity, humour and enthusiasm to presenting with excellent communication skills and a talent for making complicated concepts accessible.

Achievements

Beijing University of Post & Telecoms (BUPT) Top Ten Teacher award 2010
Won second place out of 100+ teaching staff in a competition voted for by the students.

iSubmit web-based projects system 2010
Led a team of four programmers to develop a dynamic web system for managing undergraduate university projects. The system used Python/Django/PostresSQL along with SVG and LaTeX for automatic PDF document generation. The system was designed and implemented within three months, deployed successfully and used for three years.

Top BUPT student projects 2007 – 2011
Supervised the winning BUPT final-year undergraduate project students four years in a row.

Queen Mary University of London (QMUL) Contribution Reward 2011
Recognised by the college for managing the design and installation of the Media and Arts Technology (MAT) studio facility at the Mile End campus.

Acoustic redesign of the MAT recording studio at Queen Mary University London 2014
Designed new acoustic treatment for the recording studios at Mile End campus, working with a group of PhD students to bring the control room up to professional audio mastering standard.

Experience

Engineering Consultant April 2015 – Present
Melodient Limited, York
Data engineering consultancy (working with R), mobile application development (iOS/Android), signal processing research and development.

Teaching Fellow September 2014 – September 2015
Department of Electronic Engineering, The University of York
Designing and delivering courses at undergraduate and masters level including Object Oriented Programming in Java, Data Structures and Algorithms, and Embedded Systems design for FPGAs. Supervision of Masters group projects plus individual BEng and MSc students. Conducted original research in computational creativity. Advisor for Overleaf.

Lecturer in Digital Media May 2013 – August 2014
School of Electronic Engineering and Computer Science, QMUL
Conducted original research, collaborating with a small group of researchers working on computer music perception and modelling. Published journal and conference papers plus reviewed text books and journal articles. Designed and delivered undergraduate courses on computer programming, digital systems and audio engineering. Served as a member of the electronics teaching committee steering department pedagogical strategy. Supervised PhD, MSc and BEng student projects. Signal processing consultancy. Organised college outreach events for prospective students.

Technical Director, MAT Studios Jan 2012 – Apr 2013
School of Electronic Engineering and Computer Science, QMUL
Managed the design and installation of MAT Studios at QMUL. Led the Audio Systems Engineering degree programme and delivered undergraduate modules in London and Beijing. Supervised MEng project groups plus MSc and BEng project students.

Teaching Fellow Jun 2006 – Dec 2011
Chinese Joint Programme, QMUL & BUPT
Designed and delivered undergraduate technical modules at Beijing University of Post and Telecoms (including microprocessor programming and digital system design). Supervised undergraduate engineering projects. Served as a member of the Audio Engineering Society UK committee.

Driver Developer Nov 2001 – Dec 2002
Imagination Technologies, PowerVR division, Kings Langley
Member of the Direct3D team, developing driver software in C and assembly language for PC graphics cards.

Education

Ph.D Electronic Engineering and Computer Science August 2010

Centre for Digital Music, Queen Mary, University of London, August 2010

Thesis: *Towards automatic extraction of harmony information from music signals*

MEng (1st class) Electronic Engineering with Music Technology Systems July 2001

University of York, UK, July 2001

Thesis: *Jazz by Evolution: Composition of jazz music using genetic programming*

Skills

Programming

Most experienced in:	C, VHDL, Python, Java, bash, Assembler, MATLAB, LaTeX
Have done projects in:	R, Scheme, Javascript, HTML, CSS, SVG, XML, Csound
Familiar with:	Objective C, Ruby, Clojure, C++, SQL, Leet, Processing, Max/MSP, PureData

Operating Systems

Linux, Mac OSX, Haiku, Windows, Xilkernel

Professional Affiliation

Institution of Engineering and Technology (MIET), Audio Engineering Society (AES)

Natural Languages

Native English, Conversational Mandarin Chinese, GCSE German

Past lecture courses

Data Structures and Algorithms (in C using Hanson conventions), Object Oriented Programming in Java, Introductory C programming (using SDL for gaming), Embedded systems design for FPGAs (VHDL / C / Xilkernel), Introduction to Audio, Digital Circuits, Digital Systems Design (VHDL), Microprocessor Systems (Assembler), Introduction to LaTeX and Document Presentation.

Other skills & interests

Full UK Driving License; Composing, recording and listening to music; Playing in bands; Luthiery; Typography; Cycling.

Selected publications

Corpus-taught Evolutionary Music Composition ECAL 2015

C Sulyok, A McPherson, C Harte

Sketch-Based Musical Composition and Performance NIME 2014

H Diao, Y Zhou, C Harte, N Bryan-Kinns

Low-Latency Audio Pitch Tracking: a Multi-Modal Sensor-Assisted Approach NIME 2014

L Pardue, D Nian, C Harte, A McPherson

Syncopation and the Score PLoS ONE, 2013

C Song, A Simpson, C Harte, M Pearce, M Sandler (7 citations to date)

Queen Mary's "Media and Arts Technology Studios" Audio System Design AES130 2011

M Morrell, C Harte, J Reiss

Detecting Harmonic Change in Musical Audio ACM MM 2006

C Harte, M Sandler and M Gasser (118 citations to date).

Symbolic Representation of Musical Chords: A Proposed Syntax for Text Annotations ISMIR 2005

C Harte, M Sandler, S Abdallah and E Gómez (150 citations to date)

Automatic Chord Identifcation using a Quantised Chromagram AES118 2005

C Harte, M Sandler (154 citations to date)

For a more comprehensive list please see my google scholar page.