

DR JONATHAN HATCHETT

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GitHub: <https://github.com/afinetapestry>

EMPLOYMENT

Avos **August 2022–**

Software Engineer

PUSH.live **September 2021–August 2022**

Software Engineer

Developed GPU-powered clustered video compositing engine running on AWS in C++/OpenGL for live broadcast. Highly optimised to achieve excellent performance on GPU backed instances, the video never left GPU memory enabling the code to composite multiple 4k video streams at framerates in excess of 120hz. The high availability requirements of the task meant that if a rendering instance suffered from a failure then another instance needed to process the job before the deadline expired.

Logitech **April 2020–August 2021**

Senior Software Engineer

Designed and implemented the system architecture for the Logitech Scribe smart USB camera. I had a wide range of responsibilities to ensure the project was delivered on time and with the reliability expected of a Logitech product. These included resolving issues with the board support package including corruption introduced by the USB gadget driver, and deadlocks in the Bluetooth stack. System software developed include a robust IPC library, bulk USB protocol handlers to communicate with the host PC, UVC eXtension Units to enable custom webcam functionality.

StarLeaf **August 2018–March 2020**

Software Engineer

Developed the new line of Microsoft Teams Rooms running on existing Teamline hardware. The project involved writing a suite of software to provide the required room facilities such as remote endpoint control. The software consisted of Windows services written in C and C++.

trueDR **November 2017–July 2018**

Senior Engineer (Contract)

Developed real-time point cloud generation from stereo HDR video for the automotive sector including a comprehensive verification framework. The software was written in C++ and CUDA for processing and OpenGL for display.

Performed HDR camera quality testing to analyse captured range with manufacturers specifications.

goHDR **October 2013–September 2016**

Played a key role in goHDR, a Warwick startup aiming to commercialise HDR Video, including development, pitching to investors, technical demonstrations to major industry players and trade shows.

Developed a cross-platform HDR Video Player in OpenGL/C++ with scriptable tone-mappers written in HTML/Python and platform specific frontends written in Win32, Cocoa and SDL.

WMG, The University of Warwick **July 2011–March 2013**

Software Engineering Intern

As an intern with the Visualisation Group of the International Digital Laboratory, I worked on the capture and display of HDR video and Image Based Lighting, assisted with the field testing of a prototype HDR Video Camera and the development of an encoder for HDR videos and a Mac OS X application to play the encoded video.

Implemented a HDR Video Compression algorithm in OpenCL for WMG who sponsored my undergraduate Final Project. The use of OpenCL and some novel algorithms allowed us to take compression from an offline task to near real-time performance.

SELECTED PUBLICATIONS

J. Hatchett, D. Toffoli, M. Melo, M. Bessa, K. Debattista, A. Chalmers. “Displaying detail under bright environments: A 10,000 nit display and its evaluation.” *Signal Processing: Image Communication* (2019)

J. Hatchett, K. Debattista, R. Mukherjee, T. Bashford-Rogers, and A. Chalmers. “An evaluation of Power Transfer Functions for HDR video compression.” *The Visual Computer* (2016).

EDUCATION

University of Warwick

PhD EFFICIENT AND ADAPTABLE HIGH DYNAMIC RANGE VIDEO **2013–2017**

Research into real-time high dynamic video (HDR) compression techniques using GPGPU technology. The PhD generated in two journal publications and a patent filing.

Taught the Computer Organisation and Architecture hardware labs for a number of years helping students get to grips with circuit design, low-level C and Assembly programming.

BSc Honours COMPUTER SCIENCE 2:1 **2009–2012**

Final Project: High Dynamic Range Video Compression in OpenCL

University of Reading **2008–2009**

Foundation Year SCIENCE

Ecclesbourne School, Duffield, Derbyshire **1999–2006**

A-Levels: Maths; Physics; Computing

SKILLS

Computing

Programming skills in a wide-range of languages and environments, including a widely-adopted online HDR image sharing website (<https://viewer.openhdr.org/>) in WebGL/TypeScript with a Node.js backend allowing full-range HDR images to be shared online and tone-mapped according to be the preferences of the recipient.

Interpersonal

Supervised interns during the course of my PhD. On average four interns a year were placed with our group, ranging from the UK, the Czech Republic and Turkey. I provided support and direction on a daily basis.

Customer and client facing role manning the stall at trade shows such as NAB and IBC. I enthusiastically engaged visitors to our stall while demonstrating our products.

Interests

I took up rowing in February 2019 with Chesterton Rowing Club. I won my blade sitting in the stroke seat of the Men’s 3rd VIII in the 2019 Cambridge Town Bumps. I went on to win the The Mauldon’s Brewery Trophy at the 139th Sudbury International Regatta. I served as Men’s Captain for the 2022-23 season.