

Daoming Dong | Curriculum Vitae

Department of Engineering, University of Cambridge

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Education

- **University of Cambridge** **Cambridge, UK**
PhD in Engineering 2018–present
- **Imperial College London** **London, UK**
MSc Advanced Materials Science and Engineering, First class (75) 2016–2017
- **University of Liverpool** **Liverpool, UK**
BEng (Hons) Electronics, First class with honours (75) 2014–2016
- **Xi'an Jiaotong Liverpool University** **Suzhou, China**
BEng (Hons) Electronics Science and Engineering, Top 1 (73) on progression to UoL 2012–2014

Work Experience

- **Research Consultant** **Cambridge, UK**
VividQ Ltd. 05/2018–05/2019
 - Hardware and firmware design. Paid part time.
- **Research Assistant** **Suzhou, China**
Department of Electrical Engineering, Xi'an Jiaotong University 06/2014–08/2014
 - Supervisor: Dr. Derek Gray
 - Power electronics circuit design and simulation via NI Multisim. Paid full time.

Project Portfolio

- **Hardware implementations of 3D computer generated holography** **University of Cambridge**
PhD Project 01/2018–Present
 - Supervisor: Prof. Timothy D. Wilkinson
 - **Focus:** Investigate and implement the method to accelerate the CGH generation process using configurable heterogeneous hardware including FPGA-SOC or FPGA-GPU system.
 - PCB design, FPGA design, Matlab simulation and optical system set up.
- **Awesome Board** **University of Cambridge**
PhD Side Project 08/2018–Present
 - Supervisor: Prof. Timothy D. Wilkinson
 - **Focus:** Develop a customized driver board for interfacing a high speed ferroelectric spatial light modulator.
 - The board uses a low cost Lattice FPGA to communicate and transfer data between the PC and the SLM, it also features the USB3.0 and USB2.0 connectivity
 - This mini-project was granted with two awards, the CAPE Acorn fund and the biomakers award.
 - PCB design, FPGA design and system integration.
- **Investigate the C-T relationship of thin film BCZT material** **Imperial College London**
MSc Project 12/2016–09/2017
 - Supervisor: Dr. Peter K. Petrov
 - **Focus:** dielectric thin film device fabrication and characterization
 - Full clean room fabrication experience including sample preparation, spin coating, photolithography, pulse laser deposition (PLD), evaporation and reactive ion etching.
 - Thin film devices characterization: surface analysis with Dektak profilometer, scanning electron microscopy (SEM), atomic force microscopy (AFM), x-ray diffraction (XRD) and probe station with semiconductor analyzer; electrical property investigation by the use of probe station with semiconductor analyzer.
- **Transparent electronics - thin film transistors** **University of Liverpool**
BEng Project 09/2015–06/2016

- Supervisor: Prof. Steve Hall
- **Focus:** Investigate the current transport of novel oxide semiconductor thin film transistor for transparent thin film electronics.
- Clean room fabrication and measurement experience, MatLab modeling.

Additional Skills and Achievements

Subject Related.....

- **Scientific computing and modeling:** Proficient in Matlab. Know well in Python with data analysis packages.
- **Programming language:** Medium in C/C++. Know well in Python. Know well in CUDA for parallel computing.
- **Hardware description language:** Proficient in Verilog. Know well in SystemVerilog and VHDL. Experience in coding communication protocols (UART and SPI) and arithmetics unit (2D fast Fourier Transform).
- **Field programmable gate array design:** Proficient in Intel Quartus Prime design suite and Lattice iCEcube2 design suite. Know well in Xilinx Vivado and ISE design suite.
- **Printed circuit board design:** Proficient in Altium designer. Know well Eagle. Experience in design high speed PCB with differential signaling and FPGA.
- **Holographic projection system set up:** Experience in setting up a holographic projection system with Throlab components.
- **Instruction set architecture:** Basic in ARM 7.
- **Operating systems:** Proficient in MacOS and Linux (Ubuntu, CentOS, etc.).

IT Skills.....

- **Web development:** Know well in HTML, CSS, Javascript and ruby, basic in ruby on rails framework and MongoDB database.
- **Adobe Family:** Proficient in Lightroom and Photoshop. Know well in Illustrator and After Effect.
- **Photography:** Proficient in portrait and landscape photography and post-editing.
- **Others:** *nix command line, Git, L^AT_EX.

Achievements.....

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| ○ Biomaker award | Cambridge, UK |
| ○ <i>University of Cambridge, EPSRC</i> | <i>May, 2019</i> |
| ○ CAPE Acorn award | Cambridge, UK |
| ○ <i>University of Cambridge, Department of Engineering</i> | <i>April, 2019</i> |
| ○ Advanced C++ | Online |
| ○ <i>Microsoft on Edx (DEV210.3x)</i> | <i>September, 2019</i> |
| ○ Object-oriented Data Structures in C++ | Online |
| ○ <i>University of Illinois at Urbana-Champaign on Coursera</i> | <i>September, 2019</i> |
| ○ Rails with Active Record and Action Pack | Online |
| ○ <i>John Hopkins University on Coursera</i> | <i>August, 2016</i> |
| ○ HTML, CSS, and Javascript for Web Developers | Online |
| ○ <i>John Hopkins University on Coursera</i> | <i>August, 2016</i> |
| ○ Ruby on Rails: An Introduction | Online |
| ○ <i>John Hopkins University on Coursera</i> | <i>July, 2016</i> |
| ○ 50% reduction in tuition fees of University of Liverpool (top 5%) | Liverpool, UK |
| ○ <i>University of Liverpool</i> | <i>June, 2014</i> |
| ○ Certificate of successful summit bid of Mt.Kilimanjaro in Africa (5895m) | Arusha, Tanzania |
| ○ <i>Mount Kilimanjaro National Park</i> | <i>July 31st, 2013</i> |
| ○ AIESEC volunteer at Library Project | Dar es Salaam, Tanzania |
| ○ <i>University of Dar es Salaam</i> | <i>June – August, 2013</i> |

Publication Lists

- [1] FIXED-POINT ACCURACY ANALYSIS OF 2D FFT FOR THE CREATION OF COMPUTER GENERATED HOLOGRAM
D. Dong, Y. Wang, P. Christopher, A. Kadis and T. Wilkinson. 2019 IEEE Global Conference on Signal and Information Processing.
- [2] COMPUTER HOLOGRAM GENERATION WITH ONE-STEP PHASE-RETRIEVAL USING A DIGITAL SIGNAL PROCESSOR
Y. Wang, **D. Dong**, P. Christopher, A. Kadis and T. Wilkinson. 2019 IEEE Global Conference on Signal and Information Processing.
- [3] IMPROVING HOLOGRAPHIC SEARCH ALGORITHMS USING SORTED PIXEL SELECTION
P. Christopher, J. Lake, **D. Dong**, H. Joyce and T. Wilkinson. J. Opt. Soc. Am. A 36, 1456-1462 (2019)
- [4] HARDWARE IMPLEMENTATIONS ON COMPUTER GENERATED HOLOGRAPHY: A REVIEW
Y. Wang, **D. Dong**, P. Christopher, A. Kadis, R. Mouthaan, F. Yang and T. Wilkinson. *In Submission*, 2019.
- [5] LOOKUP TABLES FOR PHASE RANDOMISATION IN HARDWARE GENERATED HOLOGRAMS
P. Christopher, Y. Wang, **D. Dong**, R. Mouthaan, A. Kadis and T. Wilkinson. *In submission*, 2019.