Daoming Dong | Curriculum Vitae

Department of Engineering, University of Cambridge

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Daoming Dong • dongdaoming • DDMichael • DDMichael

Education

- **University of Cambridge** — **Cambridge, UK**
  PhD in Engineering — *2018–present*
- **Imperial College London** — **London, UK**
  MSc Advanced Materials Science and Engineering, Distinction (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 hardwares 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 electronics.
- Clean room fabrication and measurement experience, Matlab modeling.

Additional Skills and Achievements

Subject Related

- **Scientific computing and modeling:** Proficient in Matlab.
- **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 in 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.

Achievements

- **Biomaker award** — **Cambridge, UK**
  University of Cambridge, EPSRC — *May, 2019*
- **CAPE Acorn award** — **Cambridge, UK**
  University of Cambridge, Department of Engineering — *April, 2019*
- **50% reduction in tuition fees of University of Liverpool (top 5%)** — **Liverpool, UK**
  University of Liverpool — *June, 2014*
- **Certificate of successful summit bid of Mt.Kilimanjaro in Africa (5895m)** — **Arusha, Tanzania**
  Mount Kilimanjaro National Park — *July 31st, 2013*
- **AIESEC volunteer at Library Project** — **Dar es Salaam, Tanzania**
  University of Dar es Salaam — *June – August, 2013*
- **AIESEC volunteer at at Project Umeed at AIESEC Delhi IIT** — **Delhi, India**
  Delhi IIT — *January – Febuary, 2013*

Publication Lists

[1] Computer-Generated Fresnel Holograms Using Field Programmable Gate Arrays
D. Dong, A. Kadis, Y. Wang and T. Wilkinson. 2020 OSA Imaging and Applied Optics Congress.
[2] HoloBlade: An Open Platform for Holography
A. Kadis, **D. Dong**, Y. Wang, P. Christopher, R. Mouthaan and T. Wilkinson. 2020 OSA Imaging and Applied Optics Congress.
[3] Hardware Implementations On Computer Generated Holography: A Review
Y. Wang, **D. Dong**, P. Christopher, A. Kadis, R. Mouthaan, F. Yang and T. Wilkinson. Opt. Eng. 59(10), 102413 (2020)
[4] 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.
[5] 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.
[6] 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)