

## Curriculum Vitae

### PERSONAL INFORMATION

**Youchao Wang**

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### EDUCATION

Oct 2019 – Present	<b>Ph.D. in Engineering</b> Electrical Engineering Division, Department of Engineering	University of Cambridge
Oct 2018 – Oct 2019	<b>M.Phil. in Engineering</b> Electrical Engineering Division, Department of Engineering	University of Cambridge
Sep 2016 – Jun 2018	<b>B.Eng. in Electronic Engineering</b> First class honours. GPA top 1%. Second year direct entry.	University of Manchester
Sep 2014 – Jun 2018	<b>B.Eng. in Electrical Engineering</b> Joint 2+2 programme with University of Manchester.	North China Electric Power University, Beijing

### WORK EXPERIENCE

Jan 2021 – Jul 2021	<b>Internship</b> Research on the theory and simulation of Fourier optics based optical processor.	Huawei Technologies Sweden & UK
Jan 2020 – Present	<b>Undergraduate Supervision Tutor</b> Give individual supervision courses to second-year Engineering students at St John's College. Course Part IB Paper 6, including Linear Systems and Control, Communications, Fourier Transforms & Signal and Data Analysis.	St. John's College, University of Cambridge
Jan 2019 – Mar 2019	<b>Part Time Research Assistant</b> Embedded system circuit design and embedded system software development.	Department of Engineering, University of Cambridge
Aug 2018 – Sep 2018	<b>Research Assistant</b> Research topic: Deriving physically-inspired sensor signal invariants using a physics specification language.	Department of Engineering, University of Cambridge
Jul 2017 – Sep 2017	<b>Research Assistant</b> Research topic: "Internet of Things" LoRaWAN sensor system for protecting rivers and watercourses	School of Electrical and Electronic Engineering, University of Manchester

### PROJECT PORTFOLIO

Nov 2020 – Present	<b>Raspberry PI Cluster System for Computer Generated Holography</b> Supporting and leading a M.Res. student on a multi-node cluster system hologram generation project. Focus: Distributed computing, Computer generated holography, Embedded systems, Optimization.	
Oct 2019 – Present	<b>Opto-electronic Neural Network Processor for Deep Learning Applications</b> Ph.D. Degree Research Project, Supervisor: Prof. Timothy Wilkinson Focus: Optical information processing, Fourier optics, Spatial light modulator, Machine learning algorithms, FPGA, Hardware and software co-design.	
Mar 2019 – Present	<b>Spatial Light Modulator Driver Platform for Holographic Displays</b> Research Project, Supervisor: Prof. Timothy Wilkinson Focus: Spatial light modulator display driver, Holography, PCB hardware design, FPGA implementation. Designed a bespoke multi-layer high-speed PCB and implemented customized FPGA firmware.	
Mar 2019 – Oct 2019	<b>Computer Generated Holography on a Digital Signal Processor System</b> M.Phil. Degree Research Project, Supervisor: Prof. Timothy Wilkinson	

Focus: Computer generated holograms, Digital signal processing, Algorithm implementation. Implemented multiple CGH algorithms within a high-end TI DSP processor board.

### Aug 2018 – Mar 2019 **Sensor Data Fusion using Automated Dimensional Function Synthesis**

M.Phil. Degree Research Project, Supervisor: Dr. Phillip Stanley-Marbell

Focus: Miniature hardware system design, Firmware implementation, Physics specification language compiler design. Key contributor to the construction of *Newton* computer language compiler for dimensional analysis.

### Jun 2017 – May 2018 **IoT Water Quality Monitoring System for Protecting Watercourses**

Research Project, Supervisors: Prof. Bruce Grieve and Prof. Christopher Collins

Focus: Low-cost turbidity sensor design, Low power embedded system design, LoRaWAN system.

Developed a bespoke PCB board with multiple sensors and maintained the server communication.

#### SELECTED HONOURS

CSC Cambridge-Trust Scholarship (Fully-funded Ph.D.)	Jun. 2019
CSC Masters Programme Scholarship (Partially-funded M.Phil.)	Jun. 2018
Third Year 3 <sup>rd</sup> Prize in School of EEE, UoM (Top 3 of the year)	Jun. 2018
2018 Beijing Outstanding Higher Education Graduate Title	Jun. 2018
Second Year 1 <sup>st</sup> Prize in School of EEE, UoM (Top 1)	Oct. 2017
Beijing Capital University & College "Pioneer Cup" Outstanding Member Title	Oct. 2016
Entrepreneur Student Scholarship (Top 3) at NCEPU	Dec. 2015
1 <sup>st</sup> Prize (Top 2) Student Scholarship at NCEPU	Sep. 2015
Special Award (Top 1%) in National English Competition for College Students	May. 2015
2 <sup>nd</sup> prize (Top 10) in 20 <sup>th</sup> National English Speaking Competition, Beijing region	Dec. 2014

#### POSITION OF RESPONSIBILITY

Reviewer of <i>Applied Optics</i>	2020 – Present
Vice-president of Cambridge Chinese Students and Scholars Association	2020 – Present
Second and Third Year School of EEE Student Representative, UoM	2016 – 2018
Chairman of NCEPU International Education School Students' Union	2015 – 2016
Chairman of Tsinghua High School Students' Union	2012 – 2013
Chairman and General Secretary of Tsinghua High School Model United Nations	2012 – 2013

#### PERSONAL INFORMATION

##### Subject related skills

- **Software Programming:** Proficient in C programming (Embedded C and compiler design). Know well in C++, Python (Tensorflow Framework), Java (Eclipse IDE), Matlab and Simulink.
- **Hardware programming:** Know well in Verilog and VHDL. Experience in HLS arithmetic C and Xilinx Vitis.
- **Hardware development:** Proficient in Altium Designer. Know well in Eagle, Designspark and NI Multisim (Circuit and PCB design). Know well in Solidworks and Fusion360 (Product design).
- **Environment:** Proficient in MplabX IDE and Code Composer Studio. Know well in Cadence Software (VLSI), Xilinx IDE and Quartus Prime (FPGA).
- **Embedded systems:** Proficient in the use of microcontrollers (ARM family, PIC family). Know well TI KeyStone DSPs and Lattice iCE40 FPGAs. Experience in Raspberry Pi and Beagle Bone Boards.

##### IT

- Proficient in MacOS and Linux (Ubuntu, Debian, etc.).
- Proficient in the use of  $\LaTeX$  (Invited talk How to use  $\LaTeX$  at University of Cambridge, 2019).
- Proficient in the use of Adobe Family (After Effect, Audition, Premiere, Photoshop and Illustrator), Microsoft Office Products, Corel VideoStudio, Edius and FinalCut Pro.
- Proficient in photography, filmmaking and video editing.
- Experience in web development and server maintenance.

##### Language

English (IELTS 8.0/9.0), Chinese (Native Speaker)

##### Driving licence

Full clean driving licences in China and UK.