

Youchao Wang

Department of Engineering, University of Cambridge

☎ +44 793 667 4795 • ✉ yw479@cam.ac.uk • in Youchao Wang
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Education

- Ph.D. in Engineering** *University of Cambridge, UK, 2019 – present*
◦ Electrical Engineering Division, Department of Engineering.
- M.Phil. in Engineering (By Research)** *University of Cambridge, UK, 2018 – 2019*
◦ Electrical Engineering Division, Department of Engineering.
- B.Eng. Electronic Engineering (1st Class Honours)** *University of Manchester, UK, 2016 – 2018*
◦ Second year direct entry. Final grade: 87%. Third year rank: 3/250. Second year rank: 1/240.
- B.Eng. Electrical Engineering and its Automation** *North China Electric Power University, China, 2014 – 2018*
◦ First and Second year final result: 83%. First year rank: 2/119.
- High School Graduate** *Tsinghua High School, China, 2011 – 2014*

Work Experience

- Research Assistant** *Department of Engineering, University of Cambridge, UK* *Jan. 2019 – Mar. 2019*
◦ Supervisor: Dr. Phillip Stanley-Marbell
◦ Embedded system circuit design and embedded system software development. Part time.
- Research Assistant** *Department of Engineering, University of Cambridge, UK* *Aug. 2018 – Sep. 2018*
◦ Supervisor: Dr. Phillip Stanley-Marbell
◦ Research topic: Deriving physically-inspired sensor signal invariants using a physics specification language
◦ Compiler Construction, Programming language design, Signal and Noise, Dimensional analysis, Interaction with a physically-inspired high-level description language (*Newton*).
- Research Assistant** *School of Electrical and Electronic Engineering, University of Manchester, UK* *Jul. 2017 – Sep. 2017*
◦ Supervisors: Prof. Bruce Grieve in collaboration with Prof. Christopher Collins at University of Reading
◦ Research topic: “Internet of Things” LoRaWAN Sensor System for Protecting Rivers and Watercourses
◦ Internet of Things (IoT) in e-Agri, Hardware design, PCB design, Firmware design and implementation, Wireless communication.
- Paid personal tutor** *Hanban Foreign Learning Programme, North China Electric Power University, China* *Jul. 2016 – Aug. 2016*
◦ Paid one-on-one tutoring in the form of reading, writing and speaking (Chinese, English).

Position of Responsibility

- Electronic Engineering Third Year Student Representative** *2017 – 2018*
- Electrical and Electronic Engineering Second Year Student Representative** *2016 – 2017*
- Chairman of NCEPU International Education School Students’ Union** *2014 – 2015*
- Chairman of Tsinghua High School Students’ Union** *2012 – 2013*
- Chairman and General Secretary of Tsinghua High School Model United Nations** *2012 – 2013*

Project Portfolio

- Computer Generated Holography on a Digital Signal Processor System** *2019 – 2019*
◦ M.Phil. Degree Research Project, Supervisor: Prof. Tim Wilkinson
◦ Focus: Computer generated holograms, Digital signal processing, Algorithm implementation.
- Interfacing a high speed ferroelectric spatial light modulator** *2019 – present*
◦ M.Phil. Degree Research Project, Supervisor: Prof. Tim Wilkinson
◦ Focus: Spatial light modulation, Computer generated holograms, PCB design, FPGA firmware implementation.
- Continuous Analysis within 3D-Printed Structures Using In-Chamber Sensors** *2018 – 2019*

- M.Phil. Degree Research Project, Supervisor: Dr. Phillip Stanley-Marbell
- Focus: Miniature hardware system design, PCB design, Firmware implementation, Physics specification language compiler design.

“IoT” Water Quality Monitoring System for Protecting Rivers and Watercourses 2017 – 2018

- B.Eng. Degree Individual Project, Supervisor: Prof. Bruce Grieve
- Focus: Low-cost turbidity sensor design, Low power system design, Encoding and decoding to enhance the data transmission efficiency
- Published a first-author journal paper focusing on the design of a low-cost turbidity sensor.

Embedded System Project Team Competition (3rd Rank Among 48 Groups) 2016 – 2017

- Second-year Team Project: Line-following robotic buggy using light-sensitive sensor array and ultrasound sensor
- A major contributor to hardware design and software implementation, including buggy structural design, line-detection application, motor control and programming
- Leading role in team organisation (team of 4)
- 90/100 personal project overall score

Selected Honours and Awards

Third Year 3rd Prize in School of EEE, UoM (Top 3)	<i>Jun. 2018</i>
2018 Beijing Outstanding Higher Education Graduate Title	<i>Jun. 2018</i>
Second Year 1st Prize in School of EEE, UoM (Top 1)	<i>Oct. 2017</i>
Beijing Capital University & College “Pioneer Cup” Outstanding Member Title	<i>Oct. 2016</i>
3rd Prize Student Scholarship at NCEPU	<i>Sep. 2016</i>
Entrepreneur Student Scholarship (Top 3) at NCEPU	<i>Dec. 2015</i>
1st Prize (Top 2) Student Scholarship at NCEPU	<i>Sep. 2015</i>
Special Award (Top 1‰) in National English Competition for College Students	<i>May. 2015</i>
2nd prize (Top 10) in 20th National English Speaking Competition, Beijing region	<i>Dec. 2014</i>

Key Skills

Subject Related

- Proficient in C programming (Embedded C and compiler design). Proficient in MacOS and Linux (Ubuntu, Scientific Linux, etc.).
- Know well in Verilog and VHDL coding.
- Know well in C++, Python, Java (Eclipse IDE and Android software development), Matlab and Simulink.
- Proficient in MplabX IDE and Code Composer Studio. Know well in Cadence Software (VLSI), Xilinx IDE and Quartus Prime (VHDL and Verilog).
- Proficient in Altium Designer. Know well in Eagle, Designspark, NI Multisim (Circuit and PCB design). Know well in Solidworks and AutoCAD (Product design).
- Proficient in the use of microcontrollers (PIC18 family). Know well in Raspberry Pi.
- Know well in the Cortex M series, TI KeyStone DSPs and Lattice iCE40 FPGAs.

IT

- Proficient in the use of Adobe Family (Audition, After Effect, Premiere, Photoshop), Microsoft Office Products (Invited talk *How to make PPT better looking* at NCEPU, 2016), Corel VideoStudio, Edius, FinalCut.
- Proficient in the use of L^AT_EX (Invited talk *How to use L^AT_EX* at University of Cambridge, 2019)
- Proficient in Photography, Filmmaking and Video Editing.

Driving Licence

- Full clean driving licence in China.

Language

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

Interests

Photography, Tennis, Piano. Model United Nations.

Publication List

- [1] HARDWARE IMPLEMENTATIONS ON COMPUTER GENERATED HOLOGRAPHY: A REVIEW
Youchao Wang, Daoming Dong, Peter Christopher, Andrew Kadis, Ralf Mouthaan, Fan Yang and Timothy Wilkinson. *In Submission*, 2019.
- [2] COMPUTER HOLOGRAM GENERATION WITH ONE-STEP PHASE-RETRIEVAL USING A DIGITAL SIGNAL PROCESSOR

BOARD

Youchao Wang, Daoming Dong, Peter Christopher, Andrew Kadis and Timothy Wilkinson. *In Submission*, 2019.

[3] NOVEL PREDICTIVE SEARCH ALGORITHM FOR PHASE HOLOGRAPHY

Peter Christopher, **Youchao Wang**, and Timothy Wilkinson. *In Submission*, 2019.

[4] FIXED-POINT ACCURACY ANALYSIS OF 2D FFT FOR THE CREATION OF COMPUTER GENERATED HOLOGRAM

Daoming Dong, **Youchao Wang**, Peter Christopher, Andrew Kadis and Timothy Wilkinson. *In Submission*, 2019.

[5] EFFICIENT SENSOR DATA FUSION USING AUTOMATED DIMENSIONAL FUNCTION SYNTHESIS

Youchao Wang, Sam Willis, Vasileios Tsoutsouras and Phillip Stanley-Marbell. *Accepted*, 2019.

[6] DISTRIBUTED WATER QUALITY MONITORING SYSTEM USING INTERNET OF THINGS WIRELESS PROTOCOL – LONG RANGE WIDE AREA NETWORK

Shariar Morshed Rajib, **Youchao Wang**, Chris Collins and Bruce Grieve. *In Submission*, 2019.

[7] SAFEGUARDING SENSOR DEVICE DRIVERS USING PHYSICAL CONSTRAINTS

Gregory Brooks, **Youchao Wang** and Phillip Stanley-Marbell. In *Proceedings of ACM EuroSys 2019* (poster), Dresden, 2019.

[8] LOW-COST TURBIDITY SENSOR FOR LOW-POWER WIRELESS MONITORING OF FRESH-WATER COURSES

Youchao Wang, Shariar Morshed Rajib, Chris Collins and Bruce Grieve. *IEEE Sensors Journal*, Volume: 18, Issue: 11, June 1, 2018. (Officially announced as **one of the 25 most downloaded Sensors Journal** papers in the months of October, November and December 2018, and **the 7th most popular document** as of January 2019)

[9] INTEREST SET MECHANISM TO IMPROVE THE TRANSPORT OF NAMED DATA NETWORKING

Xiaoke Jiang, Jun Bi, **Youchao Wang** and You Wang. In *Proceedings of ACM SIGCOMM13* (poster, Section 12), Hongkong, 2013.

[10] TECH REPORT: INTEREST SET MECHANISM TO IMPROVE THE TRANSPORT OF NAMED DATA NETWORKING

Xiaoke Jiang, Jun Bi, **Youchao Wang** and You Wang. *Tsinghua University*, 2013.

Referees

Available on request