

# Huan WU

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## EDUCATION

### **Ph.D., Electronic Engineering, The Chinese University of Hong Kong, 2018**

Research area: Optical Fiber Sensing, Digital Signal Processing

Dissertation: *Digital Signal Processing Techniques Assisted Distributed Brillouin Optical Time Domain Analyzer Fiber Sensor*

Dissertation Advisors: Prof. Shu, Chester Ching Tat

### **B.Eng., Information Engineering, Nanjing University of Aeronautics and Astronautics, 2013**

## WORKING EXPERIENCE

### **Research Assistant Professor, Department of Electronic and Information Engineering, The Hong Kong Polytechnic University, 2022/10-present**

Research area: Optical fiber sensing and its applications

### **Postdoc Research Fellow, Department of Land Surveying and Geo-Information, 2020/10-2022/10**

Research area: Applications of distributed optical fiber sensors in Civil Engineering

Advisors: Prof. Xiaoli DING

### **Postdoc Research Fellow, Department of Electronic and Information Engineering, 2018/10-2020/10**

Research area: Distributed optical fiber sensors

Advisors: Prof. Chao LU

### **Research Assistant, Department of Information Engineering, 2013/07-2014/07**

Research area: Microwave photonics

Advisors: Prof. Shilong PAN

## SELECTIVE PUBLICATIONS

**H. Wu**, H. F. Duan, Wallace Lai, K. Zhu, X. Cheng, H. Yin, B. Zhou, C. C. Lai, C. Lu, and X. L. Ding. "Leveraging optical communication fiber and AI for distributed water pipe leak detection." *IEEE Communications Magazine*, to be appear.

H. Zheng, **H. Wu\***, C. Y. Leong, Y. Y. Wang, X. L. Shen, Z. Fang, X. Chen, J. X. Cui, D. J. Ma, Y. Miao, L. Zhou, M. Yan, J. Sun, H. Y. Tam, X. L. Ding, C. Lu. "Enhanced quasi-distributed accelerometer array based on phase-OTDR and ultraweak fiber Bragg grating." *IEEE Sensors Journal*, doi: [10.1109/JSEN.2023.3288971](https://doi.org/10.1109/JSEN.2023.3288971).

H. Zheng<sup>+</sup>, **H. Wu**<sup>+</sup>, D. J. Ma, Y. Miao, L. Zhou, M. Yan, J. Sun, C. Y. Yu, X. L. Ding, C. Lu. "Novel mining conveyor monitoring system based on quasi-distributed optical fiber accelerometer array and self-supervised learning." *Under review*.

Y. Y. Wang, H. Zheng, **H. Wu**, D. M. Huang, C. Y. Yu, and C. Lu. "Coherent OTDR with large dynamic range based on double-sideband linear frequency modulation pulse." *Optics Express*, 31(11), 17165-17174, 2023.

**H. Wu**, B. Zhou, K. Zhu, C. Shang, H.Y. Tam, and C. Lu. "Pattern recognition in distributed fiber-optic acoustic sensor using an intensity and phase stacked convolutional neural network with data augmentation." *Optics Express*, 29(3), 3269-3283, 2021.

Z. Y. Zhao<sup>+</sup>, **H. Wu**<sup>+</sup>, J. H. Hu, K. Zhu, Y. L. Dang, Y. X. Yan, M. Tang, and C. Lu. "Interference fading suppression in phase-OTDR using space-division multiplexed probes." *Optics Express*, 29(10), 15452-15462, 2021.

K. Zhu, B. Zhou, **H. Wu**<sup>+</sup>, C. Shang, L. Y. Lu, M. Adeel, Y. Y. Xi, Z. Y. Zhao, H. Y. Tam and C. Lu. "Interference fading suppression in phase-OTDR using space-division multiplexed probes." *Optics and Lasers in Engineering*, 142, 106593, 2021.

**H. Wu**, C. Shang, K. Zhu, and C. Lu, "Vibration detection in distributed acoustic sensor with threshold-based technique: a statistical view and analysis," *Journal of Lightwave Technology*, 39(12), 4082-4093, 2020.

**H. Wu**<sup>+</sup>, H. D. Wang<sup>+</sup>, C. Shu, C. S. Choy, and C. Lu, "BOTDA fiber sensor system based on FPGA accelerated support vector regression," *IEEE Transactions on Instrumentation and Measurement*, 69(6), 3826-3837, 2019.

## **PRESENTATIONS**

**H. Wu**, Kenneth Lai, X. L. Ding. "Optical fiber sensing applications in real-time assets health monitoring for building structures." *Webinar on Application of Automation and Technology in Construction Materials Testing*, Hong Kong Council for Testing and Certification, 2023/02.

## **PROFESSIONAL SERVICES**

Consultant for *Water Supplies Department, The Government of Hong Kong SAR*

Project: Consultancy study on distributed fiber optic system for leak detection for water mains in Anderson Road Quarry Development Site.

Reviewer for *Optics Express, Photonics Journal, Journal of Lightwave Technology, Optics and Lasers in Engineering*

## **RELEVANT SKILLS**

Hands on skills in fiber-optic related systems

Programming ability in Python and Matlab

Fluent in English, Cantonese, and Mandarin

