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Postdoc

State Key Laboratory of Digital Manufacturing Equipment and Technology

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Personal

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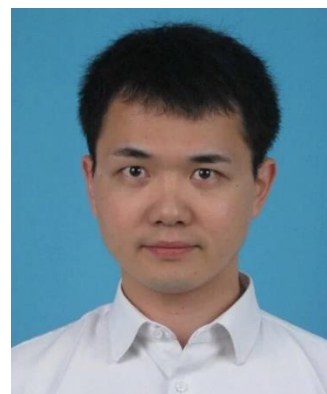
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Education Background

School of Mechanical Science and Engineering, HUST	Wuhan, China
PhD (Mechatronic Engineering)	2010.09 – 2017.04
School of Computer Science and Engineering, UIUC	Champaign, IL, USA
Jointed PhD	2014.02 – 2016.05
School of Foreign Languages, HUST	Wuhan, China
BA (English)	2008.09 – 2010.06
School of Mechanical and Electronic Engineering, WUT	Wuhan, China
BE (Mechanical Engineering and Automation)	2006.09 – 2010.07

Academic Experience

School of Engineering, HZAU	Wuhan, China
Associate Professor	2020.04 - Now

School of Mechanical Science and Engineering, HUST	Wuhan, China
Postdoc	2017.05 - 2020.04
Birck Nanotechnology Center, Purdue	West Lafayette, USA
Project Cooperation	2016.02
School of Computer Science and Engineering, UIUC	Champaign, IL, USA
Visiting Scholar	2014.02 – 2016.05

Research Area

Micro/Nano Manufacturing Technologies, Flexible Photonics, Wearable sensing Devices, Robotic Tactile Sensing, Biosensors.

Scientific Research Project

1. NSFC Youth Program, 51805194, the multi-modal sensing mechanism and property modulation of flexible photonic crystal for robotic tactile sensing, 2019/01-2021/12, RMB 250,000, **Lead**.
2. 62th China Postdoc Science Foundation, 2017M622411, 2017/10-2019/10 RMB 50,000, **Lead**.
3. 2017 Hubei Province Postdoc Project, G13, Self-powered Flexible and Stretchable Photonic Crystal Sensor for Robot Perception, 2017/11-2019/9, RMB 20,000, **Lead**.
4. China Scholarship Council, CSC201306160029, Joint PhD Program, 2014/02-2016/05, **Lead**.
5. NSFC International Program, 51820105008, Mechanisms and Key Techniques of Stretchable Multimodal Sensing in Dexterous Robotic Manipulations, 2019/01-2023/12, RMB 2,460,000, **Member**.
6. NSF USA, No.1447893, Early-Concept Grants for Exploratory Research, 2014/08-2016/10, USD 200,000, **Participant**.

Publication

1. **Peng W**, Liao Q, Song H. A Nanograting based Flexible and Stretchable Waveguide for Tactile Sensing. *Nanoscale Research Letters*, 2021. (**SCI IF: 3.581**)
2. **Peng W**, Hao Wu, Flexible and Stretchable Photonic Sensors Based on Modulation of Light Transmission [J]. **Advanced Optical Materials**, 2019. (**SCI IF: 8.224**)
3. **Peng W**, Chen Y, Ai W. Higher-order mode photonic crystal based nanofluidic

- sensor [J]. *Optics Communications*, 2017, 382: 105-112. (SCI IF: 2.125)
4. Peng W, Chen Y, Ai W, et al. A Nanofluidic Biosensor Based on Nanoreplica Molding Photonic Crystal [J]. *Nanoscale Research Letters*, 2016, 11(1): 427. (SCI IF: 3.581)
 5. Peng W, Chen Y, Ai W, et al. CMOS-compatible fabrication of photonic crystal based nanofluidic structure [J]. *Nanoscale Research Letters*, 2017. (SCI IF: 3.581)
 6. Wan, Y., Carlson, J. A., Kesler, B. A., Peng W., Su, P., Al-Mulla, S. A. ... & Cunningham, B. T. (2016). Compact characterization of liquid absorption and emission spectra using linear variable filters integrated with a CMOS imaging camera [J]. *Scientific Reports*, 6. (SCI IF: 5.76)
 7. Wan, Y., Carlson, J. A., Al-Mulla, S. A., Peng, W., Long, K. D., Kesler, B. A. ... & Cunningham, B. T. (2018). Integrated spectroscopic analysis system with low vertical height for measuring liquid or solid assays. *Sensors and Actuators B: Chemical*, 255, 935-943. (SCI IF: 5.40)
 8. Han Song, Zhijie Luo, Mingyao Liu, Gang Zhang, Wang Peng, et al, Centrifugal Deposited Au-Pd Core-Shell Nanoparticle Film for Room-Temperature Optical Detection of Hydrogen Gas. *Sensors*, 2018. (SCI IF: 2.475)
 9. Wan, Y., Carlson, J. A., Kesler, B. A., Peng, W., Su, P., Al-Mulla, S. A., ... & Cunningham, B. T. (2016, June). Characterization of liquid absorption and emission spectra using linear variable filters integrated with a CMOS camera. In *CLEO: Applications and Technology* (pp. JW2A-5). *Optical Society of America*.
 10. Carlson, J. A., Wan, Y., Kesler, B. A., Peng, W., Al-Mulla, S. A., Su, P., ... & Cunningham, B. T. (2016, October). Integration of linear variable filters on CMOS for compact emission and absorption sensing. In *SENSORS, 2016 IEEE* (pp. 1-3). IEEE.

Patent

National Invention Patent:

1. Hao Wu, Wang Peng, Xin Huang, Zhouping Yin. The Manufacturing and Application Method of Metal based Strain Gage, 2019.02.22, CN109373889A
2. Hao Wu, Wang Peng, Zhouping Yin. The Manufacturing Method of Flexible and

- An independent design of nanofluidic sensor based on photonic crystal was realized, and the FDTD electromagnetic field simulation was used to optimize the sensor design, as well as the sensitivity test experiment of the resonance wavelength frequency shift.
- The Nanoreplica Molding and MEMS technology for designing and manufacturing photonic crystal nanofluidic sensor was demonstrated, and the detailed realization process and simulation experiment process were also presented.
- Electron beam etching, chemical vapor deposition, lithography, physical sputtering, reactive ion beam etching and direct bonding were used to realize MEMS based photonic crystal sensor.
- Nanoreplica molding, embossing technology and direct bonding method were used to implement rapid prototyping.

3. Handheld Spectrometer based on LVF/CMOS

UIUC, Champaign

Key member

2014.10 - 2016.05

- A LVF bonded on a CMOS chip was realized, and the optical path was analyzed and designed by means of Zemax optical simulation.
- Microfluidic channel for ELISA test and spectral absorption test were designed with Solidworks, and related testing platform was realized with 3D printer.
- Biological analysis experiments were carried out with designed spectrometer and testing platform.

4. Handheld ELISA Biological Analyzer

UIUC, Champaign

Member

2014.02 -2014.08

- The flow chart design of smartphone detection app was built, and the initial java-based mobile app was developed.

5. FPGA based Cigarette Surface Defect Detection system

HUST

Key member

2012.04-2013.07

- Verilog was used to enable the driver software of CMOS line scan camera based on FPGA.
- The whole test platform was realized, including motor drive, transmission system, camera detection module, and control system.

- The early testing experiments of the cigarette surface detection system was completed.

Scholarship and Awards

1. **Joint PhD Training Program (China & USA)** (2014.02 - 2016.05)
CSC201306160029
Source of funding: CSC, HUST, UIUC
2. **Second Prize in Hubei University Student Entrepreneurship Competition**
(2012.09) Reward: 150,000 RMB
Organizer: Hubei Provincial Department of Education
3. **Outstanding Postgraduate Student Cadre** (2012.12)
Organizer: HUST
4. **Outstanding Postgraduate Student Cadre** (2011.12)
Organizer: HUST
5. **Honorary Title of Outstanding Graduate** (2010.07)
Organizer: WUT