Hongsheng Xu

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Education

ZJU(Zhejiang University) Hangzhou, Zhejiang

College of Information Science & Electronic Engineering *Sep. 2016 - PRESENT*

- Ph.D Candidate of Electronic Science & Technology. Field: flexible devices, Surface Acoustic Wave (SAW) sensors, SAW microfluidics
- *Core Courses: Analog and Mixed Signal Intergrated Circuit Design, Modern VLSI Process Technology, Micro/Nano Electronics, IC Reliability Design, Microsensors and Microactuators*

AHU(Anhui University) Hefei, Anhui

College of Electronics & Information Engineering *Sep. 2012 - Jun. 2016*

- Bachelor of Communication Engineering, GPA 87/100, Ranking 1/140
- *Core Courses: Communication Principles, Communication Electronic Circuit, Analog Electronic Circuit, Signal and System, Electromagnetic field and electromagnetic wave*

Research Experience

Research Assistant, SAW strain sensor based on lithium niobate (LN) thin film, ZJU *Aug. 2017 - Jan. 2018*

- Firstly developed flexible SAW strain sensor based on LN thin film.
- Strain sensing range $\pm 3000\mu\varepsilon$, high sensitivity 193 Hz/$\mu\varepsilon$, low hysteresis, and excellent stability.
- Multi-parameter sensing & decoupling and self temperature calibration, owing to the dual-mode property.
- Numerical computation and simulation analysis, based on elastic theory and perturbation theory.

Research Assistant, SAW pressure sensor based on LN thin film, ZJU *Mar. 2018 - PRESENT*

- Improved the sensitivity of SAW pressure sensor, owing to the flexibility of LN thin film.
- Theoretical analysis of the effect of diaphragm shape on sensitivity and burst pressure.

Research Assistant, FBAR device based on LN thin film, ZJU *Mar. 2018 - PRESENT*

- Developed high frequency FBAR based on nano scale LN thin film processed by crystal ion slicing technology.
- Band width of FBAR was improved owing to the high electromechanical coupling coefficient of LN.
- Searched for optimal LN cuts using multiphysics field simulation software COMSOL.

Research Assistant, SAW device for cells counting, ZJU *Sep. 2016 - PRESENT*

- Cells counting may be realized using standing SAW waves, based on the SAW attenuation effect of cells.
- Designed PDMS channel with air cavity, in order to suppress the SAW absorption of PDMS.
- The Lab on chip can be integrated into a micro total analysis system (μ-TAS) for cells manipulation, mixing, counting and so on.

Engineering Experience

Algorithm Engineer, State Grid Anhui Electric Power Corp., Hefei, Anhui *Nov. 2015 - Jun. 2016*

- Proposed an algorithm of structure optimazation and topology generation for the power telecommunication network.
- The algorithm establishes a mathematical model of graph theory to transform the physical model of actual networks into a calculation model.
- The algorithm provides new ideas for the improvement of network survivability and topology generation method.

Project Leader, Dormitory security monitoring system based on ARM, AHU *May. 2015 - Aug. 2015*

- Developed an embedded system for signal sensing and control in security monitoring application, using ARM Cortex - M4 based MCU.
- Accumulated knowledge in power management.
- Gained experience in hardware & software design and team leading.

Project member, Polymorphic apparatus, Hangzhou *Sep. 2016 - Nov. 2016*

- STM32 based embedded system for EEG signals acquisition and processing.
- Communication protocols design for Bluetooth and wifi.
- Gained experience in team cooperation.

Papers & Patents

- **Xu H**, Dong S, Xuan W, et al. Flexible surface acoustic wave strain sensor based on single crystalline LiNbO 3 thin film[J]. Applied Physics Letters, 2018, 112(9):093502. Top sci.
- Li Z, **Xu H**, Ye B, et al. An algorithm of structure optimization and topology generation for the power telecommunication network[J]. Electrical Automation, 2017, 39(5):20-23. Core Chinese journal in science and technology
- Huang L, Li B, **Xu H**, Zhang X, Huang W, Huang Z, Zhang D, Zhao J. Controlling system and controlling methods for adjusting the inclination of rocket launching platform[P]. Anhui： CN104634165A,2015-05-20. Authorized.
- Li Z, Ye B, Ge F, Rong X, Xu Q, **Xu H**, Peng W. An algorithm of structure optimization and topology generation for the power telecommunication network[P]. Anhui： CN106533732A,2017-03-22. In substantive examination.
- Dong S, **Xu H**, Xuan W, Luo J, Umar F. Lithium niobate thin film based film bulk acoustic resonator and its preperation method[P]. Zhejiang： CN107342748A,2017-11-10. In substantive examination.
- Dong S, **Xu H**, Xuan W, Luo J, Umar F. Film bulk acoustic resonator based wireless & passive measuring system and methods[P]. Zhejiang： CN107727125A,2018-02-23. In substantive examination.

Research Fund

National Natural Science Foundation of China *Jan. 2019 - Dec. 2022*

- SAW device based on PVDF/PVTF.

Manufacturing basic technology and key components project *Jan. 2019 - Dec. 2022*

- Research on novel wireless passive sensors for moving parts

Awards & Honors

2018	**Excellent League Member**, Zhejiang University	Hangzhou
2016	**Provincial Merit Graduate**, Anhui University	Hefei
	Outstanding Dissertation, Anhui University	Hefei
2015	**2nd Prize**, National College Students' Electronic Design Competition in Anhui	Wuhu
	3rd prize, Excellent Study Scholarship, Anhui University	Hefei
2014	**Excellent Student Scholarship**, Anhui University	Hefei
	Scholar & Technology Scholarship, Anhui University	Hefei
	First Prize, "Electromagnetic artillery"， Electronic Design Competition in Anhui	Hefei
	3rd Prize, China Aeromodelling Design Challenge	Qingdao
	Excellent Project, "Dormitory security monitoring system based on ARM", Anhui University	Hefei
	First Prize, Radio Direction Finding Competition in Anhui (144 MHz)	Wuhu
	Team Champion, Radio Direction Finding Competition in Anhui	Wuhu
	First Place, The 16th World Skills Competition in Anhui	Hefei
2013	**Scholar & Technology Scholarship**, Anhui University	Hefei
	Guoyuan Scholarship, Anhui University	Hefei
	Social Practice Scholarship, Anhui University	Hefei
	Advanced Individual in Social Practice , Anhui University	Hefei
	2nd Prize, National Radio Direction Finding Competition	Lianyungang
	First Prize, Radio Direction Finding Competition in Anhui (144MHz)	Hefei
	Team Champion, Radio Direction Finding Competition in Anhui	Wuhu

Skills & Others

Programming Python, C, MATLAB, LaTeX

Languages CET6 499, CET4 541

GitHub https://github.com/iseexuhs

Hobbies Reading, Movies, Animation, Photography, Badminton, Climbing