WUYANG YU

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Summary

Senior Systems Engineer with 7 years of industry (autonomous driving and consumer electronics) and 6 years of research (healthcare applications) experience relevant to sensing technologies, sensor modeling, validation and signal processing algorithms.

Fast learner and effective communicator experienced in collaborating with cross-functional teams and external suppliers under both dynamic startup and established corporate environments.

Passionate about building automated and scalable modeling and evaluation frameworks for sensing applications

Skills

Languages Python, MATLAB, SQL, C/C++

Tools Cursor, PyTorch, Databricks, Blender, PipeDream, JMP

Specialties Sensor Modeling, Sensor Coverage Sim, Audio Processing and ML, Data Mining, Statistical Analysis

Professional Experience

Senior Sensor Systems Engineer — *Zoox*

06/2025 – present **Perception Verification & Validation for Sensor Changes**

- Lead roll-out strategy for new sensor configurations (e.g. Camera ISP firmware) by defining and executing validation plans
- Enhance Perception metric pipelines to support comparison across sensor configurations
- Build unsupervised fleet-level metrics dashboards to monitor candidate sensor configurations

04/2025 – present **Hardware Module Health Monitoring by Sound with Fine-Tuned PANNs**

- Build automated PipeDream pipelines that mine audio recodrings, run ML inference and publish metrics to AWS
- Fine tune pre-trained models (PANNs) for detecting module-specific anomalies (e.g. braking sounds)
- Design fault-tolerant pipelines to mitigate scheduling variability while achieving low latency

01/2022 – present **Sensor (Camera, Lidar, Radar) Coverage Modeling and Validation**

- Build 3D and 2D sensor coverage modeling tools with Python and Blender for system-level analysis
- Lead a team of 3 engineers to establish sensor coverage validation methodology and deliver results
- Build sensor metric pipelines that adapt to labeled scenes and unlabeled structured tests with auto-labeling capabilities (e.g. localization-based, clustering-based, etc.)

01/2022 – 09/2024 **Next-Gen Depth Sensor Development and Qualification**

- Led a group of 3 engineers on sensor design iteration and qualification strategy
- Built sensor end-to-end simulation (radiometric model, AFE and DSP)
- Developed signal processing algorithms (de-aliasing, interference detection, parallax correction and motion compensation)
- Derived hardware requirements (FoV, max range, depth accuracy and noise, sensor placement, etc.)
- Data-driven sensor market landscape comparison

11/2022 – 05/2025 **Radar Module Requirements**

- Requirements management and release through vehicle builds
- Collaborated with internal stakeholders and suppliers to ensure compliance
- Maintained full traceability to system-level requirements and validation plans

Sensor Design & Integration Engineer — *Apple*

10/2018 – 01/2022 **iPhone Touch & Force Sensor Technologies**

- Delivered Touch modules (iPhone 12 portfolio) from concept to product release
- Sensor E2E modeling and automated AFE/DSP parameter optimization for noise suppression

- Built automated frameworks for sensor design validation testing
- Designed dev board schematics and defined layout constraints for PCBs/FPCs.
- Defined calibration, test, and reliability methodology/requirements across the supply chain.
- Supported engineering build bring-up, FA and yield analysis

Graduate Research Assistant *Ziaie Biomedical Microdevices Laboratory, Purdue University*

09/2012 – 07/2018 **Microsystems Design and Integration, Advanced Manufacturing Technologies and Novel Sensing Materials for Healthcare, Wearable and Agricultural Applications**

- Co-Authored 19 academic publications (>750 citations) and 2 patents
- 2 main research projects with productization efforts:
  - **Autonomous diaper-embedded colorimetric sensing platform with urine-activated battery for UTI screening** (*Ph.D. Dissertation*)
  - **Magnetically activated Smart Capsule for localized GI tract drug release**
- Knowledge of sensing algs dev, colorimetry, microfluidics, electrochemistry and material engineering
- Hands-on experience of CAD design, rapid prototyping and various electrical/mechanical characterization instruments
- Renovated research group website with modernized Bootstrap template and created interactive keyword cloud of research projects (front end JS/PHP, backend MySQL database)

Education

08/2012 – 08/2018 Ph.D. in Electrical and Computer Engineering
PURDUE UNIVERSITY – West Lafayette, IN, USA
- Advisor: Prof. Babak Ziaie

08/2008 – 07/2012 B.S. in Microelectronics – GPA 91.9/100
TSINGHUA UNIVERSITY – Beijing, China

Scholarship & Awards

2009 – 2011 Academic Merit Scholarship / *Zheng Geru* Scholarship, *Tsinghua University*
2010 *Li & Fung* scholarship, (for exchange study at the University of Hong Kong)
2009 First prize of Beijing University Student Physics Competition, Non-physical Group A
2007 First prize of China Physics Olympiad (CPHO) for high school students, *Jiangxi* Province

Selected Publications

Journal

- W. Seo, **W. Yu**, et al. "Diaper-Embedded Urinary Tract Infection Monitoring Sensor Module Powered by Urine-Activated Batteries." *IEEE transactions on biomedical circuits and systems* 11.3 (2017): 681-691.
- **W. Yu**, et al. "A Smart Capsule With GI-Tract-Location-Specific Payload Release." *IEEE Transactions on Biomedical Engineering* 62.9 (2015): 2289-2295.
- R. Rahimi, M. Ochoa, **W. Yu**, et al. "Highly stretchable and sensitive unidirectional strain sensor via laser carbonization." *ACS applied materials & interfaces* 7.8 (2015): 4463-4470.

Conference

- H. Jiang, **W. Yu**, et al. "Inkjet-printed Solid-state Potentiometric Nitrate Ion Selective Electrodes for Agricultural Application." *IEEE Sensors*, 2019
- **W. Yu**, et al. "A diaper-embedded disposable nitrite sensor with integrated on-board urine-activated battery for UTI screening." *Engineering in Medicine and Biology Society (EMBC), 2016 IEEE 38th Annual International Conference*.

Patents

- B. Jung, B. Ziaie, **W. Yu**, W. Seo, "DEVICES, SYSTEMS, AND METHODS FOR DETECTING TARGETED COMPOUNDS." WIPO Patent Application WO2017160399A1. 21 Dec. 2017. Print.
- B. Ziaie, R. Rahimi, and **W. Yu**. "Smart capsule with GI-tract-location-specific payload release." U.S. Patent Application No. 14/919,120.