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, sensor data analysis and signal processing algorithms.

Experienced in collaborating with cross-functional teams and external suppliers under both dynamic startup and established corporate environments to deliver production results while applying engineering rigor.

Passionate about building automated, scalable and ML-powered modeling and data pipelines for sensing applications.

Skills

Languages	Python, SQL, MATLAB, C/C++
Tools	Cursor, PyTorch, scikit-learn, Databricks, Shapely, Blender, PipeDream, JMP
Specialties	Sensor Modeling, Coverage Modeling, Audio Processing / ML, Data Mining, Statistical Analysis

Professional Experience

Senior Systems Engineer — Sensors / PCP V&V / HW Health Monitor *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 A/B comparison across sensor configurations
- Build unsupervised fleet-level metrics dashboards to monitor Perception performance for candidate sensor configurations

04/2025 – present **Fleet-Scale Hardware Health Monitoring by Audio ML**

- Build automated PipeDream pipelines that mine fleet audio recodrings, run ML inference and publish module health metrics to AWS dashboards
- Fine tune pre-trained models (PANNs) for detecting hardware anomalies (e.g. brake noise with >90% recall and precision)
- Fault-tolerance pipeline design that mitigates scheduling variability while achieving low latency (days)

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

- Build 3D / 2D sensor coverage modeling tools with Python / Blender for system-level analysis
- Lead a 3-engineer squad to establish validation methodology and deliver results
- Build sensor metric pipelines that adapt to labeled scenes and unlabeled structured tests with auto-labeling capabilities (via GPS tagging or heuristics), reducing lead time from weeks to days

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

- Led a group of 3 engineers on iTOF sensor design iteration and qualification strategy
- Built sensor end-to-end simulation (radiometric model, AFE and DSP)
- Developed DSP and ML-based signal processing algorithms (de-aliasing, interference detection, parallax correction and motion compensation)
- Derived hardware requirements (FoV, 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 full 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 production (>100M units)
- Sensor E2E modeling and automated AFE/DSP parameter optimization pipeline for improved SNR
- 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, 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 design and MySQL-backed interactive keyword cloud of research projects

Education

08/2012 – 08/2018 Ph.D. in Electrical and Computer Engineering
PURDUE UNIVERSITY – West Lafayette, IN, USA

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

- 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.
- H. Jiang, **W. Yu**, et al. "Inkjet-printed Solid-state Potentiometric Nitrate Ion Selective Electrodes for Agricultural Application." *IEEE Sensors*, 2019

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.