Yu Feng

Ph.D. Candidate

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Professional Summary

- Ph.D. candidate in imaging systems (expected completion in September 2026) with over five years of experience in **CMOS image sensor (CIS) VLSI design** and **advanced imaging system development**.
- Developed novel, multi-tap CIS-based imaging system that achieves **a programmable dynamic range of 56-126 dB** with motion artifact and LED flicker suppression for automotive applications. Also developed **robust, motion- and ambient light-resistant** imaging systems for multi-spectral skin tissue imaging.
- Trilingual researcher (**English, Japanese, Chinese**). First author of **three peer-reviewed publications** and numerous Japanese and international conference papers. Seeking an R&D role to contribute to next-generation imaging technologies.

Skills

Languages: English (Fluent, TOEIC 990/990, 2018), Japanese (Fluent, JLPT N1, 2019), Chinese (Native)

Programming Languages: MATLAB, C/C++, Python, Verilog HDL

Hardware & Tools: CMOS Image Sensor architecture, VLSI Design (Cadence Virtuoso), FPGA (Quartus, ModelSim)

Education

Ph.D. **Shizuoka University** | Hamamatsu, Japan — 2023.10 – 2026.09 (Expected)
Nanovision Technology
Advisor: Prof. Kagawa Keiichiro
Research: Multi-tap CMOS Image Sensors for Biomedical and HDR Imaging

M.Eng. **Shizuoka University** | Hamamatsu, Japan — 2021.10 – 2023.09
Electronics Engineering
Advisor: Prof. Kagawa Keiichiro

B.Eng. **Shizuoka University** | Hamamatsu, Japan — 2016.04 – 2020.03
Electrical and Electronic Engineering

Research Experience

Ambient-Light-Robust 3-Wavelength Biomedical Imaging System — 2024 – Present

- Engineered a quantitative skin measurement system using pulsed illumination and an 8-tap CMOS image sensor.
- Achieved >**10x improvement in ambient light tolerance** for clinical environments.

HDR Imaging System with LED Flicker and Motion Artifact Mitigation — 2023 – 2025

- Developed a **programmable dynamic range (56–126 dB)** imaging system with LED flicker and motion artifact mitigation using a 4-tap CMOS image sensor with the charge-splitting method for automotive or biomedical applications.
- Published in ***IEEE Sensors Journal*** (2025.03) and ***Sensors* IISW 2025 special issue** (2025.11).

Motion-Artifact-Robust 3-Wavelength Biomedical Imaging System — 2022 – 2023

- Developed a non-invasive skin imaging system robust against motion artifacts utilizing an 8-tap

CMOS image sensor, in collaboration with **University of California, Irvine**.

- Published in ***Journal of Biomedical Optics*** (2024.01).

Multi-Aperture Multi-Tap CMOS Image Sensor for Biomedical Imaging 2021 – 2022

- Led VLSI design for a multi-aperture, multi-tap CMOS image sensor tailored for non-invasive multi-band biomedical imaging.
- Managed the tape-out process; Chip fabricated in 2024, measurement in progress.

Publications

1. **Performance Characterization and Tuning of a Charge-Splitting High Dynamic Range 4-Tap CMOS Image Sensor** 2025.11
Yu Feng, et al., *Sensors*,DOI: 10.3390/s25226953.

2. **Programmable Dynamic Range HDR Imaging with LED-Flicker and Motion Artifact Mitigation Using a Four-Tap CMOS Image Sensor** 2025.03
Yu Feng, et al., *IEEE Sensors Journal*, DOI: 10.1109/JSEN.2025.3557801.

3. **Motion-Resistant Three-Wavelength Spatial Frequency Domain Imaging System with Ambient Light Suppression Using an 8-Tap CMOS Image Sensor** 2024.01
Yu Feng, et al., *Journal of Biomedical Optics*. DOI: 10.1117/1.JBO.29.1.016006.

4. **Spatial Frequency Domain Imaging System Using a Scanning Micro-Mirror** 2025.03
Kenta Nakazawa, Yu Feng, et al., *Sensors and Actuators A: Physical*.
DOI: 10.1016/j.sna.2025.116421.

5. **Resolving Multi-Path Interference in Compressive Time-of-Flight Depth Imaging with a Multi-Tap Macro-Pixel Computational CMOS Image Sensor** 2023.01
Horio Masaya, Yu Feng, et al., *Sensors*. DOI: 10.3390/s22072442.

Recent International Conference Presentations

1. **Room-Light Operation of a Three-Wavelength Spatial Frequency Domain Imaging System Using Pulsed Illumination and an 8-Tap CMOS Image Sensor** 2025.06
Yu Feng, et al., *European Conference on Biomedical Optics 2025*, Munich, Germany.

2. **Programmable Dynamic Range Extension up to 110 dB Based on Charge-Splitting Method with 4-Tap CMOS Image Sensor** 2025.06
Yu Feng, et al., *International Image Sensor Workshop 2025*, Hyogo, Japan.

3. **Multi-Tap CMOS Image Sensor with Programmable Functional Exposure: Application to Structured Light Based Quantitative Tissue Imaging** 2024.07
Yu Feng, et al., *Optica Imaging Congress 2024*, Toulouse, France.

Industry Experience

QA Engineer, Meidensha | Nagoya, Japan 2020.04 – 2021.09

- Implemented quality assurance protocols for electric vehicle motors to ensure compliance with automotive safety standards, improve production reliability, and enhance motor performance.

Awards & Honors

- **Graduate School Scholarship**, Amano Foundation 2023 – 2026
- **Outstanding Academic Records**, Shizuoka University 2024 – 2026