

# Yu Feng

Ph.D. Candidate | Imaging Systems

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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 a 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 multispectral skin tissue imaging.
- Trilingual researcher (**English, Japanese, and 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); Japanese (fluent, JLPT N1); Chinese (native)  
**Programming Languages:** MATLAB, C/C++, Python, and Verilog HDL  
**Hardware & Tools:** CMOS image sensor architecture, VLSI design (Cadence Virtuoso), and FPGA (Quartus, ModelSim)

## Education

<b>Ph.D. Shizuoka University</b>   Hamamatsu, Japan Nanovision Technology Advisor: Prof. Keiichiro Kagawa Research: Multi-tap CMOS Image Sensors for Biomedical and HDR Imaging	2023.10 – 2026.09 (Expected)
<b>M.Eng. Shizuoka University</b>   Hamamatsu, Japan Electronics Engineering Advisor: Prof. Keiichiro Kagawa	2021.10 – 2023.09
<b>B.Eng. Shizuoka University</b>   Hamamatsu, Japan Electrical and Electronic Engineering	2016.04 – 2020.03

## Research Experience

<b>Ambient-Light-Robust 3-Wavelength Biomedical Imaging System</b> <ul style="list-style-type: none"><li>• Engineered a quantitative skin measurement system that uses pulsed illumination and an 8-tap CMOS image sensor.</li><li>• Achieved a <b>&gt;10x improvement in ambient light tolerance</b> for clinical environments.</li></ul>	2024 – Present
<b>HDR Imaging System with LED Flicker and Motion Artifact Mitigation</b> <ul style="list-style-type: none"><li>• Developed a <b>programmable dynamic range imaging system (56–126 dB)</b> with LED flicker and motion artifact mitigation using a 4-tap CMOS image sensor with the charge-splitting method for automotive or biomedical applications.</li><li>• Published in <b>IEEE Sensors Journal</b> (2025.03) and <b>Sensors IISW 2025 Special Issue</b> (2025.11).</li></ul>	2023 – 2025
<b>Motion-Artifact-Robust 3-Wavelength Biomedical Imaging System</b> <ul style="list-style-type: none"><li>• Developed a non-invasive skin imaging system that is robust against motion artifacts utilizing an 8-tap CMOS image sensor, in collaboration with <b>University of California, Irvine</b>.</li></ul>	2022 – 2023

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

**Multi-Aperture Multi-Tap CMOS Image Sensor for Biomedical Imaging**

2021 – 2022

- Led the 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. <b>Performance Characterization and Tuning of a Charge-Splitting High Dynamic Range 4-Tap CMOS Image Sensor</b> Yu Feng, et al., <i>Sensors</i> , DOI: <a href="https://doi.org/10.3390/s25226953">10.3390/s25226953</a>	2025.11
2. <b>Programmable Dynamic Range HDR Imaging with LED-Flicker and Motion Artifact Mitigation Using a Four-Tap CMOS Image Sensor</b> Yu Feng, et al., <i>IEEE Sensors Journal</i> , DOI: <a href="https://doi.org/10.1109/JSEN.2025.3557801">10.1109/JSEN.2025.3557801</a>	2025.03
3. <b>Motion-Resistant Three-Wavelength Spatial Frequency Domain Imaging System with Ambient Light Suppression Using an 8-Tap CMOS Image Sensor</b> Yu Feng, et al., <i>Journal of Biomedical Optics</i> . DOI: <a href="https://doi.org/10.1117/1.JBO.29.1.016006">10.1117/1.JBO.29.1.016006</a>	2024.01
4. <b>Spatial Frequency Domain Imaging System Using a Scanning Micro-Mirror</b> Kenta Nakazawa, Yu Feng, et al., <i>Sensors and Actuators A: Physical</i> . DOI: <a href="https://doi.org/10.1016/j.sna.2025.116421">10.1016/j.sna.2025.116421</a>	2025.03
5. <b>Resolving Multi-Path Interference in Compressive Time-of-Flight Depth Imaging with a Multi-Tap Macro-Pixel Computational CMOS Image Sensor</b> Horio Masaya, Yu Feng, et al., <i>Sensors</i> . DOI: <a href="https://doi.org/10.3390/s22072442">10.3390/s22072442</a>	2023.01

**Recent International Conference Presentations**

1. <b>Room-Light Operation of a Three-Wavelength Spatial Frequency Domain Imaging System Using Pulsed Illumination and an 8-Tap CMOS Image Sensor</b> Yu Feng, et al., <i>European Conference on Biomedical Optics 2025</i> , Munich, Germany.	2025.06
2. <b>Programmable Dynamic Range Extension up to 110 dB Based on Charge-Splitting Method with 4-Tap CMOS Image Sensor</b> Yu Feng, et al., <i>International Image Sensor Workshop 2025</i> , Hyogo, Japan.	2025.06
3. <b>Multi-Tap CMOS Image Sensor with Programmable Functional Exposure: Application to Structured Light Based Quantitative Tissue Imaging</b> Yu Feng, et al., <i>Optica Imaging Congress 2024</i> , Toulouse, France.	2024.07

**Industry Experience**

<b>QA Engineer</b> , 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**

• <b>Graduate School Scholarship</b> , Amano Foundation	2023 – 2026
• <b>Outstanding Academic Record</b> , Shizuoka University	2024 – 2026