

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

## Research Experience

<b>Ambient-Light-Robust 3-Wavelength Biomedical Imaging System</b>	2024 – Present
• Engineered a quantitative skin measurement system that uses pulsed illumination and an 8-tap CMOS image sensor.	
• Achieved a <b>&gt;10x improvement in ambient light tolerance</b> for clinical environments.	
<b>HDR Imaging System with LED Flicker and Motion Artifact Mitigation</b>	2023 – 2025
• 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.	
• Published in <b>IEEE Sensors Journal</b> (2025.03) and <b>Sensors IISW 2025 Special Issue</b> (2025.11).	
<b>Motion-Artifact-Robust 3-Wavelength Biomedical Imaging System</b>	2022 – 2023
• 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> .	

- 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

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

## Recent International Conference Presentations

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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>	2025.06
Yu Feng, et al., <i>European Conference on Biomedical Optics 2025</i> , Munich, Germany.	
2. <b>Programmable Dynamic Range Extension up to 110 dB Based on Charge-Splitting Method with 4-Tap CMOS Image Sensor</b>	2025.06
Yu Feng, et al., <i>International Image Sensor Workshop 2025</i> , Hyogo, Japan.	
3. <b>Multi-Tap CMOS Image Sensor with Programmable Functional Exposure: Application to Structured Light Based Quantitative Tissue Imaging</b>	2024.07
Yu Feng, et al., <i>Optica Imaging Congress 2024</i> , Toulouse, France.	

## Industry Experience

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<b>QA Engineer</b> , Meidensha   Nagoya, Japan	2020.04 – 2021.09
<ul style="list-style-type: none"> <li>Implemented quality assurance protocols for electric vehicle motors to ensure compliance with automotive safety standards, improve production reliability, and enhance motor performance.</li> </ul>	

## Awards & Honors

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