

Specializing in the development of Optical Wireless Power Transmission (OWPT) applications and Laser safety technology, I bring a robust background in the design and implementation of VCSEL-based systems and the advanced safety solutions towards the operation of Lasers. My academic foundation encompasses optical design, semiconductor physics, and photovoltaic, complemented by practical skills in computer vision, system control, and automation. I excel at integrating these disciplines to innovate and enhance system efficiencies in OWPT projects.

**PROFESSIONAL EXPERIENCE** **OWPT Lab, Institute of Science Tokyo** **PhD Course Student** Kanagawa, Japan  
Oct 2021 – Present

- Advisor: Associate Prof. Tomoyuki Miyamoto
- Theme: Advanced Optical Wireless Power Transmission Safety System towards Error-free Safety

**FIRST, IIR, Institute of Science Tokyo** **Research Assistant** Kanagawa, Japan  
Oct 2022 – Present

- Project: Development of the IoT application and the control system for indoor Optical Wireless Power Transmission System.

**RESEARCH OUTCOMES**

1. Advanced OWPT Safety System towards Error-free Safety.	ongoing
2. Camera-based Safety System for Long-Distance OWPT.	ongoing
3. OWPT Auto-Tracking and Control System.	ongoing
4. Fundamental Investigation of Camera-based Safety System of OWPT.	July 2023
5. OWPT using VCSEL and GaAs Solarcell.	Jan 2021
6. A Novel GaN Power Converter.	Aug 2020
7. Arduino-based smart home system development.	Apr 2020
8. Photoelectric Detection Based Auto-Tracing PID Smart Car.	Oct 2019

**EDUCATION** **Institute of Science Tokyo (former Tokyo Institute of Technology)** Tokyo, Japan  
MEng. in Electrical and Electronic Engineering Nov 2021 – July 2023  
Dissertation: Fundamental Investigation of Camera-based Safety System of Optical Wireless Power Transmission (Top 10% With Outstanding Award)  
Advisor: Associate Prof. Tomoyuki Miyamoto

**Suzhou University of Technology (former Changshu Institute of Technology)** Suzhou, China  
Bachelor of Engineering in Optoelectronic Information Science and Technology Sep 2017 – Jun 2021  
Thesis: Mode Characteristics Analysis of The Ridged Waveguide  
Advisor: Prof. Ming Yang

**SKILLS** **Programming&Hardware** Python, Matlab, STM32, C, Arduino,  $\LaTeX$   
**Tools** Matlab, COMSOL, Lighttools  
**Languages&Test** English(IELTS 7.0), Chinese(Native), Japanese(Primary), GRE 317

**RESEARCH INTERESTS**

- Short-Mid-Long Range Optical Wireless Power Transmission
- Laser Safety and Automatic Laser Emission Control
- Vertical Cavity Surface Emitting Laser
- Object recognition and intrusion detection

**SELECTED PUBLICATIONS**

1. Chen Zuo, and Tomoyuki Miyamoto. 2024. "Camera-Based Safety System for Optical Wireless Power Transmission Using Dynamic Safety-Distance" Photonics 11, no. 6: 500.
2. Chen Zuo, Tomoyuki Miyamoto. 2025. "Advanced OWPT Safety System: Improved Metrics and Optimization for Multiple Intrusion Objects" In The 7th Optical Wireless and Fiber Power Transmission Conference, OWPT02:02.

3. Chen Zuo, Tomoyuki Miyamoto. 2024. "3D-Camera Based Optical Wireless Power Transmission Safety System for Light Beam Scanning Applications" The 29th MICROOPTICS Conference.
4. Chen Zuo, and Miyamoto Tomoyuki. 2023. "Improvement of Optical Wireless Power Transmission Safety System Using Depth Camera by New Safety Distance." In The 5th Optical Wireless and Fiber Power Transmission Conference, OWPT11:05.
5. Chen Zuo, and Miyamoto Tomoyuki. 2024. "Integrative Dynamic Safety System for OWPT: Real-Time Velocity and Distance-Based Safety Control." In The 6th Optical Wireless and Fiber Power Transmission Conference, OWPT06:02.

AWARDS

- Outstanding Master Student Award 2023
- Student Paper Award, OWPT2023 2023
- Excellent Undergraduate Thesis 2021
- University Scholarship, Second 2021
- University Scholarship, Second 2020
- University Scholarship, First 2019
- Excellent AIESEC Global Volunteer 2018