Chen ZUO MEng

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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

Miyamoto Lab, Tokyo Institute of Technology Kanagawa, Japan
PhD Course Student *Oct 2021 – Present*

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

FIRST, IIR, Tokyo Institute of Technology Kanagawa, Japan
Research Assistant *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. Fundamental Investigation of Camera-based Safety System of OWPT. *July 2023*
3. OWPT using VCSEL and GaAs Solarcell. *Jan 2021*
4. A Novel GaN Power Converter. *Aug 2020*
5. Arduino-based smart home system development. *Apr 2020*
6. Photoelectric Detection Based Auto-Tracing PID Smart Car. *Oct 2019*

Education

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

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, 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.
3. 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. SPIE.

Awards

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