Tian Lan

Email: tianlan9308@gmail.com
Phone: +86 15008413002

RESEARCH FOCUS

Specializing in modeling, designing, and controlling power and energy systems with expertise in active distribution network planning, controlling and regulating new energy clusters, and optimizing photovoltaic energy storage systems using artificial intelligence techniques. Working Experienced in collaborating with interdisciplinary teams of researchers, industry partners, and stakeholders on numerous energy-related projects. Skilled in utilizing MATLAB, Python, and C++ to develop innovative solutions for complex energy problems.

EDUCATION

M.S. in Electronic Information *Aug. 2021 – Present*
Qinghai University 3.69/4.0 GPA
B.S. in Electrical Engineering and Automation *Aug. 2012 – Jul. 2017*
Beijing Jiaotong University 3.10/4.0 GPA
Major in Engineering Management

PROFESSIONAL EXPERIENCE

Internship Experience
R&D Intern *Dec. 2022 – Feb. 2023*
Sichuan Energy Internet Research Institute, Tsinghua University
R&D Institute of Distribution Network and Renewable Energy Management and Control

- Designed and implemented a remote operation and maintenance platform for a station area autonomous control system, achieving a 50% reduction in power interaction with the grid through various demand response modeling and testing. Demonstrated through successful field projects.
- Developed and implemented an MQTT interface with subscription and publication modules, enabling the efficient publication of equipment information to the data center of the convergence terminal.
- Constructed and validated a continuous tide closed-loop simulation environment for station areas, enabling comprehensive testing of control strategies and simulations of various scenarios.

Working Experience
Systems engineers *Aug. 2017 – May. 2021*
Chengdu Jiaoda Guangmang Technology Co., Ltd

- Ensure the power supply safety and emergency guarantee of high-speed railway. It mainly includes solving any technical problems of the high-speed railway integrated power supply SCADA system and cooperating with other engineers and technicians to ensure the seamless and efficient operation of the system.
- Design, development and service of products and systems related to power grid automation and informatization projects.

PUBLICATIONS

[1] **T. Lan**, Y. Zhang and W. Zhang, "Model Predictive Control of Energy-Stored Quasi-Z-Source Inverter Without Weighting Factor," *2022 IEEE 17th Conference on Industrial Electronics and Applications (ICIEA)*, Chengdu, China, 2022, pp. 892-899, [Link].

[2] **T. Lan**, Y. Zhang and W. Zhang, "A Rao-Blackwellised Unscented Kalman Filtering for MPPT Estimation in Photovoltaic Systems" in *2023 42nd Chinese Control Conference (CCC)*, China, 2023. **(Accepted)**

RESEARCH EXPERIENCE

INTELLIGENT SYSTEM LABORATORY, *Qinghai University* *Aug. 2021 – Present*

*"Characterization and Optimal Control of Energy Storage Quasi-Z Source Photovoltaic (PV) System"***(NSF)**

- Modeling/control of energy storage PV power systems for daytime and nighttime operation.
- Development of a novel filtering technique for Maximum Power Point Tracking (MPPT) estimation of PV systems using Unscented Kalman Filter (UKF) technology.
- Development of the state of charge (SOC)-based energy storage battery pack control algorithm to improve battery pack life.

PROJECT EXPERIENCE

1. **Project for the operation and maintenance of the dispatch center for high-speed railways**

   Team Leader China Railway Chengdu Group Co., Ltd. *Aug. 2019 – May. 2021*

   - Led a team in operating, maintaining, and responding to emergency response for the comprehensive SCADA system for the power supply of dedicated passenger lines and the Contact wire and Catenary Ground Monitoring system (CCGM, i.e., 6C). Timely and effectively handled safety accidents on multiple high-speed railways in Sichuan, Chongqing, and Guizhou.
   - Assisted with software and hardware testing of the high-speed railway Catenary and Pantograph Video Monitor device (CPVM, i.e., 5C).

2. **Project for a Catenary intelligent monitoring system**

   Partner: China Railway Eryuan Engineering Group (CREEC) *Oct. 2018 – Dec. 2018*

   - Successfully Managed the planning, writing, revision, and equipment selection for catenary intelligent monitoring projects on the Chenggui Line and Xicheng Line.

3. **Simulation training system for power supply safety detection monitoring (GM600-IDPC-ST)**

   Partner: China Railway Zhengzhou Group Co., Ltd *Aug. 2018 – Nov. 2018*

   - Managed GM600-IDPC-ST project implementation plans for power supply sections in Zhengzhou and Xinxiang, overseeing project implementation, equipment customization, and staff training.

4. **Maintenance and operation of high-speed railway equipment** *Aug. 2017 – Dec. 2018*

   - Collaborated with local railway bureaus and power supply sections to install, maintain and update intelligent terminal equipment along high-speed railways, such as RTUs and PLCs.
   - Drafted nearly 100 technical documents and implementation plans for 18 railroad bureaus for projects already built or under construction.

HONORS AND AWARDS

- ***Graduate Scholarship****, Qinghai University, 2022*
- ***Best New Employee Award****, Chengdu Jiaoda Guangmang Technology Co., Ltd, 2017*
- ***Fenfei Award****, Beijing Jiaotong University, 2017*

TECHNICAL SKILLS

- English proficiency: CET-6
- Computer software: MATLAB (including Simulink), MATPOWER, Python, C/C++
- Network protocols: TCP/IP, Modbus, IEC104
- Other skills: Linux, MySQL, Zabbix, ANSYS, SOLIDWORKS, COMSOL.