Zhiyi ZHAO

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EDUCATION

South China University of Technology *B.Eng. in Electrical Engineering*

Selected courses: Electric Circuits, Power System Analysis, Power Electronics, Analog Electronics, Digital Electronics, Automatic Control Theory | **GPA**: 3.85 / 4.0 or 90.11 / 100 | **Rank**: 3 / 31

Online courses: Optimization in modern power systems given by Prof. Spyros Chatzivasileiadis

- Learned basic principles of Linear programming, quadratic programming, nonlinear programming and semidefinite programming
- Mastered how to formulate economic dispatch problem and DC/AC optimal power flow problem
- Got a preliminary understanding of convex relaxation and its application

RESEARCH EXPERIENCE

Auxiliary Frequency Control using LCC-HVDC Dec. 2022 – Mar. 2022

Supervisor: Prof. Ying Xue

- Replaced the AC transmission lines with LCC-HVDC for the four-machine two-area model in PSCAD
- Verified the decoupling effect of LCC-HVDC on the frequency of the two areas through simulation. Gained preliminary insights into the auxiliary frequency control capability of LCC-HVDC through simulation

Photovoltaic Hosting Capacity Estimation in Radial Distribution Networks [Slides] Jul. 2022 – Nov. 2022

Supervisor: Prof. Ying Xue

- Proposed a simple yet effective approach to estimate photovoltaic hosting capacity in radial distribution networks using bus voltage and line parameters
- Found that there exists a strong linear relationship between the square of bus voltage and PV output. Found that the increment of line losses mainly happens on the branches from the substation to PV-connected bus

PROJECTS

Multi-level Energy Exploitation Based on Hydrogen Storage [Slides] May. 2022 – Jul. 2022

Supervisors: Prof. Jiehui Zheng and Prof. Zhigang Li

- Incorporated the electric energy converted from renewable energy sources such as wind energy and solar energy into the grid or used it for electrolysis to generate hydrogen for storage
- Achieved multi-level energy utilization of integrated energy through fuel cell power generation, waste heat utilization of hydrogen energy storage, and synthesis of industrial raw materials

IoT-based Off-grid Solar Panel Monitoring System [PDF] Apr. 2022

Supervisor: Prof. Mengshi Li

- Designed an off-grid solar panel monitoring system integrated on a phone-sized PCB
- Utilized the wide coverage characteristics of NB-IoT network to adapt to various application scenarios

PUBLICATIONS

- **Zhiyi Zhao**, Conghuan Yang, Ying Xue, Zhaoxi Liu, Weiye Zheng, "A Novel Estimation Method for Maximum PV Hosting Capacity in Radial Distribution Networks using Bus Voltage and Electrical Distance," *Electric Power Systems Research*, submitted.

ACTIVITIES

Summer in Japan 2021, Kyushu University Jul. 2021

- Received a scholarship equivalent to the tuition fee, which is only awarded to "applicants whose academic records are evaluated as particularly strong by the SIJ selection committee"
- Achieved S (90-100) grades in the chosen courses *Interdisciplinary Lecture Series (ILS)* and *Japanese Language Course (JLC)* The program reflection was posted on the program's official website

AWARDS

- **National Scholarship** (Top 0.2% national-wide) Dec. 2022
- First Prize in the 1st Electrical & Electronics Engineering Innovation Competition (Southern Division) Jul. 2022

SKILLS

- **Language:** IELTS: 7 (7.5 / 7.5 / 6 / 6.5); CET-6: 567
- **Programming:** C++, Python
- **Tools:** Matlab/Simulink, PSCAD, Multisim, Quartus, TEX, Visio, Origin

Last Updated on May 29, 2023