

# Zhiyi ZHAO

[isyzhz@gmail.com](mailto:isyzhz@gmail.com) | [www.zhiyizhao.xyz](http://www.zhiyizhao.xyz) | +86 157-3605-8772

## EDUCATION

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### 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

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### 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

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

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### 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

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- **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

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### 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

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

## SKILLS

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- **Language:** CET-6 567
- **Programming:** C++, Python
- **Tools:** Matlab/Simulink, PSCAD, Multisim, Quartus,  $\text{\LaTeX}$ , Visio, Origin

Last Updated on May 7, 2023