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Wenyu-LIU
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Education

Present 09.2023	Master in Energy Science and Technology, École Polytechnique Fédérale de Lausanne Section of Electrical and Electronical Engineering GPA: 5.5/6.0
06.2023 09.2019	Bachelor in Energy Storage Science and Engineering, Xi'an Jiaotong University Faculty of Electronic and Information Engineering GPA: 91.16/100

Work Experience

08.2025 02.2025	Internship in Power Systems of the Future (100%) @ <u>Hitachi Energy</u> - Developed a Python library (MOSAIC) from scratch for large-scale capacity expansion analysis and optimization of future energy systems, with extendability, accelerated computation and integrated result processing. - Enhanced post-processing and visualization workflows for a MATLAB-based capacity expansion model (ECOTRANS), applied the toolkit to multiple studies. - Provided continuous technical support in the team.
09.2024 07.2024	Summer Internship in Charging System (100%) @ <u>SAIC Motor</u> - Performed state-of-the-art review of on-board chargers, conducted a feasibility study on the vertical integration of on-board chargers. - Designed control systems and simulation models for a 6.6 kW/400 V totem-pole bridgeless PFC converter and LLC resonant converter demo.
09.2022 03.2022	Internship in Energy Storage Market (40%) @ <u>China Energy Storage Alliance (CNESA)</u> - Maintained and updated CNESA's energy storage project, policy and bidding information databases. - Collected energy storage news articles; edited drafts of research reports and compiled quarterly global energy storage market tracking report.

Skills & Languages

Relevant Skills	Convex optimization, Power system analysis (pandapower, PyPSA), Smart grid technologies (monitoring, forecasting, optimal power flow), Energy system modelling
Other Skills	Control design (PID and model predictive control), Data analysis, Git for version control, $\LaTeX$, Life cycle assessment, LTSpice, MS Office, PLECS, System identification
Coding	Python, MATLAB & Simulink, C/C++, LabVIEW, HTML, CSS
Language	Chinese — Native English — C1 Français — A2

Projects

- Semester project at DESL – A Framework for Carbon Flow Tracing in Swiss Power Distribution Grids: Developed a framework for carbon footprint tracing from inferred Swiss low-voltage and medium-voltage grids. Modeled the generation (with the meteorology and roof suitability of PV panels) and load (with land-use categories) profiles. Developed customized average participation method with loss treatment for flow tracing. The framework is applied using both a small toy example and a synthetic distribution grid in Switzerland. Results reveal significant temporal and spatial variations in attributed emission intensities.

- › Semester project at DESL – Lithium-Ion Cell Equivalent Circuit Model Parameters Estimation from Time-Domain Measurements: Utilized voltage and current signals sampled by battery management system for estimating the parameters of battery equivalent circuit models. Explored the identifiability of different parameters and developed a low-frequency model for estimating constant phase element via grey-box estimation.
- › My Personal Website: Built my personal website wenyuliu.ch with Quarto, deployed by GitHub Pages. Hosted my CV, journey and some projects on the website for public reference.
- › The Impact of COVID-19 on Green Energy Transition in European Countries: Delved into the interplay between the COVID-19 and renewable transition in 6 EU countries, analyzed datasets on generation, interests, mobility and government intervention, uncovered how the pandemic impacted electricity generation, consumption, and awareness of renewable energy.