Xinyang Che

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RESEARCH FOCUS

Energy System Modeling, Climate Policy, Emerging Low-carbon Technologies

EDUCATION

The City University of New York, New York, US *2025.6 -*
Research Assistant in Deep Policy Lab, Baruch College, supervised by Gang He
Direction: Climate policy, power system decarbonization

King's College London, London, UK *2024.3 - 2025.4*
Visiting student in Engineering, Faculty of Natural, Mathematical & Engineering Sciences
Research Assistant in STAR Lab, Dept. of Engineering, supervised by Wei He
Direction: Energy system modeling

Xi'an Jiaotong University, Xi'an, China *2022 - 2025*
M.Sc. in Electronic Information, supervised by Hong Gao and Bo Liu
Graduated with Distinction, GPA: 90.60/100

Xi'an Jiaotong University, Xi'an, China *2018 - 2022*
B.Eng. in Electrical Engineering, supervised by Zhengchun Du
GPA: 83.73/100
Core Courses: Signals and Systems (90), Electronics Practice (89), Advanced Mathematics (88), Complex Analysis & Integral Transformation (94), Linear Algebra (91), University Physics (90)

RESEARCH OUTPUTS

Energy and Power Systems

Climate Change Impacts on European Energy Systems
Advisor: Dr. Gang He, *The City University of New York* *Ongoing*

- Quantified Europe-wide wind and solar resource potentials for "current" (2020s) and "future" (2050s) climates using multi-model CMIP6.
- Projected national electricity, heating, and cooling demands by coupling historical load data with demographic trajectories and bias-corrected air-temperature projections.
- Integrated supply, demand, and techno-economic assumptions into PyPSA-Eur model and optimized different strategies for mitigating energy drought events.

Assess Space-Based Solar Power for European-Scale Power System Decarbonization
Advisor: Dr. Wei He, *King's College London Paper link (Under review at Joule) 2024.4 - 2025.4*

- Modelled 2 advanced Space-Based Solar Power (SBSP) designs and 2050's European power system (PyPSA), combined them for optimization.
- Demonstrated future feasibility of SBSP, achieving a 7-15% reduction in total system costs, an 83% decrease in terrestrial wind and solar installed capacity, and a 78% reduction in battery storage usage.
- Pinpointed the capital cost benchmarks at which SBSP transitions from a cost-prohibitive, to supplementary, further to a dominant baseload technology through extensive sensitivity analyses.
- Completed paper (first author).

Normal Form Approximation for Nonlinear Power Systems
Advisor: Prof. Zhengchun Du, *Xi'an Jiaotong University* *2021.11 - 2022.6*

- Performed power flow calculations and transient stability analysis of a single-machine infinite bus system on PSASP, and concluded that the generator power angles are gradually diminishing.

- Conducted a normal form approximation analysis on a generator model, selecting different orders for polynomial approximation modeling.
- Reduced the error from 0.99 percent to 0.07 percent by innovatively using normalized approximation compared to the conventional method, validating the method's effectiveness under different orders.

Linear Optical Simulation in Physics

Experimental Investigation of the Uncertainty Relation in Pre- and Postselected Systems

Advisor: Prof. Bo Liu, *Xi'an Jiaotong University* *Paper link (PRA2025) 2023.11 - 2024.12*

- Innovatively simulated a linear optical system on an experimental platform, and successfully verified the uncertainty relations in pre- and postselected systems (PPS) by introducing weak measurements.
- Designed an experimental plan and optical path, achieved 4 steps of initial state preparation, weak coupling, post-selection, and pointer measurement through different combinations of experimental instruments such as half-wave plates, beam displacers (BD), polarizing beam splitters (PBS).
- Completed paper (co-first author).

PROFESSIONAL EXPERIENCES

Ankang Hydropower Station

Operations Department *2021.7 - 2021.8*

- Operated critical equipment, including switchyards, circuit breakers, and main transformer rooms.
- Conducted equipment inspections and monitored load flow, transformer temperatures, and efficiency.
- Analyzed voltage stability and supported troubleshooting to ensure smooth operation.

SELECTED AWARDS

2024 Master's Academic Scholarship from Xi'an Jiaotong University
2023 Master's Academic Scholarship from Xi'an Jiaotong University
2022 Excellent Award in the "Tengfei Cup" Innovation and Entrepreneurship Competition
2022 Master's Freshman Scholarship from Xi'an Jiaotong University
2019 Xi'an Jiaotong University Scholarship

EXTRACURRICULAR EXPERIENCE

Volleyball Association of XJTU, President *2020.9 - 2021.6*
Primarily responsible for organizing the volleyball league, conducting daily volleyball training sessions, teaching volleyball skills, etc., with more than 300 participants involved.
Xi'an Radio and Television Station FM106.1 Program, Guest Speaker *2021.3*
Global Governance and Innovation Talents Camp, Program Delegate *2022.12*

SKILLS

Programming Languages and Skills	C, Python, Matlab, PSCAD, LaTEX, SolidWorks
Languages	Mandarin (Native), English (IELTS 7.0)