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.Res. 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: Linear Algebra (91), Signals and Systems (90), Electronics Practice (89), Advanced Mathematics (88), Complex Analysis & Integral Transformation (94), University Physics (90)

PUBLICATIONS & PRE-PRINTS

Assess space-based solar power for European-scale power system decarbonization
Xinyang Che, Lijun Liu, Wei He **Joule 2025**
- *Oral Presentation at 3rd PyPSA User Meeting*
- *Oral Presentation at Workshop on Open Modeling Carbon Neutrality of the Power Sector*

Experimental investigation of the uncertainty relation in pre- and postselected systems
Yue Zhang*, **Xinyang Che***, Yuanbang Wei, Rui Tian, Yi-an Li, Miao Zhang, Shuai Li, Bo Liu
PRA 2025

(*: equal contribution)

RESEARCH EXPERIENCES

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 energy system 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* *2024.3 - 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.

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* *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).

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

MEDIA COVERAGE & PRESENTATIONS

2025 The Guardian: Solar panels in space "could provide 80% of Europe's renewable energy by 2050"
2025 Oral Presentation: 3rd PyPSA User Meeting, Online
2025 Oral Presentation: Workshop on Open Modeling Carbon Neutrality of the Power Sector, Xi'an

SKILLS

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