Yifan Dong

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Profile

- I am a third-year Ph.D. student in Electrical and Computer Engineering with a strong academic background and hands-on experience in optimization for coupled power-transportation system. I am skilled in programming languages such as Python and MATLAB. I am looking for an internship for Summer 2026.

Education

Purdue University, West Lafayette, IN   Aug 2023 – Present
Ph.D. student in Electrical and Computer Engineering

- Research interest: Optimization for coupled power-transportation systems
- GPA: 3.83/4.0 [Up-to-date transcript]
- Coursework: Computational Method in Optimization, Convex Optimization, Computational Method for Power System Analysis, Optimization for Deep Learning, Algorithm Design, Analysis and Implementation, etc.

North China Electric Power University, Beijing, China   Aug 2019 – June 2023
BS in Electrical Engineering and its Automation

- GPA: 4.31/5.0 (Top 1%) [Transcript]
- Coursework: Circuit Theory, Power System Analysis, Power System Economy and Management, Electrical Systems and Power Plants, Automatic Control Theory, etc.

Publications

Yifan Dong, Ge Chen, Junjie Qin, "**Federated Aggregation of Demand Flexibility**", submitted to *IEEE Transactions on Smart Grid*, 2025. [arXiv]

Yifan Dong, Ge Chen, Junjie Qin, S. Sivaranjani, Xiaonan Lu, Dionysios Aliprantis, David Love, "**Real-Time Charging Control for Electric Roadways**", submitted to *IEEE Transactions on Smart Grid*, 2025.

Yifan Dong, Junjie Qin, S. Sivaranjani, Xiaonan Lu, Dionysios Aliprantis, David Love, "**Real-Time Charging Control for Electric Roadways: Formulation and Causal Algorithms**", *2024 IEEE Power & Energy Society General Meeting (PESGM)*.

Experiences

Research Assistant: ASPIRE Research Center   Aug 2023 – Present

- **Project 1: Charging Control Policy for Electric Roadways**
  - Developed a causal, real-time charging control algorithm for in-motion wireless EV charging corridors.
  - Tested our algorithm under various traffic conditions, showing low suboptimality and constraint violation.
  - Tools used: MATLAB, Python, SUMO.

- **Project 2: Privacy-Preserving Demand Flexibility Aggregation for Flexible Loads**
  - Designed an end-to-end federated framework that keeps sensitive and high-dimensional user data local, and shares only anonymized and low-dimensional information with an aggregator.
  - Evaluated the framework with flexibility use cases, showing substantially larger aggregate flexibility compared to existing methods.
  - Tools used: PyTorch, CvxpyLayer.

Teaching Assistant: Purdue University   Aug 2024 – Dec 2024

- **ECE 31032: Power Systems Engineering**
  - Supported instruction on economic dispatch, transformers, power system modeling and power flow analysis.

Presentations

- "*Federated Aggregation of Demand Flexibility*", 2025 ASPIRE Annual Meeting, Logan, UT (forthcoming) [Poster]
- "*Real-Time Charging Control for Electric Roadways*", 2024 ASPIRE Annual Meeting, Logan, UT [Poster]
- "*Real-Time Charging Control for Electric Roadways*", 2024 IEEE PES General Meeting, Seattle, WA [Poster]