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 of 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]