YIFU EVE DING

MIT-Shell Energy Scholar │ AI + Energy/Sustainability @ MIT Energy Initiative & MIT Sloan School of Management

📞 6672927882   @ yifuding@mit.edu   🔗 <u>www.yifueveding.com</u>   📍 Cambridge, MA

SUMMARY

I am a **MIT-Shell Energy Scholar** at the MIT Energy Initiative and the MIT Sloan School of Management, where I have conducted **research and taught**. I have been fortunate to be supervised by <u>Professor Thomas Magnanti</u>, the **former Dean of the MIT School of Engineering and Institute Professor of Operations Research**. My interests focus on **AI/ML + Energy and Sustainability, Date-driven energy and transportation System planning and operations, and Optimization Under Uncertainty**. I have collaborated with leading utility companies, including **Rio Tinto, Shell, and IHI Japan**, and have received sponsorship. I have <u>**a significant number of citations (100+)**</u>, secured **grant funding (~$400,000)**, and **published in top journals**.

EDUCATION

D.Phil in Engineering Science
University of Oxford

📅 10/2018 - 12/2022

- Thesis: <u>bridging power system optimization under uncertainty and machine learning forecasting</u>

Master in Sustainable Energy Futures
Imperial College London (GPA 4.0/4.0)

📅 10/2016 - 10/2017

BEng in Electrical and Electronics Engineering
University of Edinburgh (First Class)

📅 10/2012 - 10/2016

PROFESSIONAL

Post Doctoral Researcher/Fellow
MIT Sloan School of Management & MIT Energy Initiative

📅 01/2023 - Present   📍 Cambridge, United States

- Collaborated with multidisciplinary teams both within and beyond MIT, including faculty at **Princeton University and New York University, as well as industry representatives**.
- Drafted research proposals, recruited and mentored students, and prepared reports and presentations for corporate partners.
- Led the development of large-scale energy and transportation models using **Python and Julia**.
- Authored and published journal articles and conference papers.
- Taught and developed courses at MIT Sloan (Leading teaching assistant of **optimization method for bussiness analytics**) and the MIT Energy Initiative (co-instructor of MIT IAP course **Computational modeling for promoting low-carbon electricity**).

AWARDS

🏆 **MIT-Shell Energy Scholar Fellowship, 2025-2026**

🏆 **MIT Prize for Open Data, 2024**

🏆 **Great Britain-China Educational Trust Scholarship, 2022**

🏆 **Santander Academic Travel Award, University of Oxford, 2021**

🏆 **MSc in SEF Prize for Best Research Project, Imperial College London, 2017**

🏆 **The First Prize of ABB 4th University Innovation Contest, ABB China headquarter, 2015**

PROJECTS

RACER: Robust and Adaptive Computing Energy & Resource Coordination based on CPU utilization

📅 11/2025 - 05/2026
📍 Cambridge, United States

- Leveraged millions of Microsoft virtual machine traces to model power reduction in data centers (rescheduling and DFVS)
- Implement in a privacy-preservation fashion, considering U.S. power market practices

Electric Vehicle Charging Infrastructure Planning for Light-duty trucks at Mining Sites

📅 09/2024 - 10/2025
📍 Cambridge, United States

- Collaborate with one of the largest mining companies in the world, **Rio Tinto**
- Cleaned and processed the **full-year GPS traces of 200 light-duty trucks using ArcGIS and Python**
- Built large-scale mixed integer optimization model to plan and schedule mixed types of EV chargers, with over **20 million variables**

PROFESSIONAL

Policy Analyst, Sino-German Cooperation on Climate Policies
(GIZ) GmbH

📅 10/2017 - 10/2018   📍 Beijing, China
- Managed and drafted monthly China Energy Policy Newsletter
- Co-organized with *Anders Hove* on workshop Future Grid Planning in China: What can China learn from Europe? Inviting 30 guests from academia, government, and NGOs.

HIGHLIGHTED PUBLICATIONS

A dataset of the operating station heat rate for 806 Indian coal plant units using machine learning
Data in Brief

Yifu Ding, Jansen Wong, Serena Patel, Dharik Mallapragada, Guiyan Zang

📅 07/2025   🔗 https://doi.org/10.1016/j.dib.2025.111939

Won *MIT Open Data Prize 2024,* **Featured by** *MIT News* **&** *MIT Climate*

The role of coal plant retrofitting strategies in developing India's net-zero power system: a data-driven sub-national analysis
Energy for Sustainable Development

Yifu Ding, Dharik Mallapragada, Robert Stoner

📅 03/2025   🔗 https://doi.org/10.1016/j.esd.2025.101687

Featured by *MIT News* **&** *MIT Climate*

Repurposing coal power plants into thermal energy storage for supporting zero-carbon data center
IEEE PES General Meeting

Yifu Ding, Dharik Mallapragada, Serena Patel, Robert Stoner

📅 07/2024   🔗 10.1109/PESGM51994.2024.10688708

First-of-a-kind idea using thermal energy storage from retrofitted coal power plants to support zero-carbon data centers. Featured by *Data Center Knowledge*

Distributionally robust joint chance-constrained optimization for networked microgrids considering contingencies and renewable uncertainty
IEEE Transactions on Smart Grid

Yifu Ding, Thomas Morstyn, Malcolm McCulloch

📅 03/2022   🔗 https://ieeexplore.ieee.org/document/9709590

Top journal in the Electrical Engineering field (**Impact Factor = 9.8**)

OPEN-SOURCE CODE

📁 **GenXProject: GenX.jl v0.4.0 (Julia)**
    Open-sourced capacity expansion model for energy systems

📁 **Indian Coal Plant Dataset Visualization (Python)**
    https://india-map-liart.vercel.app (including 806 Indian coal plant datasets up-to-date)

PROJECTS

Data-driven power system planning for India considering coal plant retrofitting solutions

📅 01/2023 - 05/2024
📍 Cambridge, United States
- Developed a 30-zone India power system planning model independently in **Julia** for the next 10 years.
- Published **two high-impact journal papers** as the first author.

SELECTED MEDIA

MIT Energy Initiative welcomes 2025-2026 Energy Scholars
MIT News, Nov 2025

- -

Could Aging Coal Plants Be Transformed into Renewable Data Center Energy Storage?
Data Center Knowledge, June 2025

- -

How can India decarbonize its coal-dependent electric power system?
MIT News, May 2025

- -

Honoring Researchers Across MIT: Third annual MIT Prize for Open Data awarded to 10 research projects
MIT Libraries, May 2025

- -

Green Radio: Dynamic power saving configuration for mobile networks
The Alan Turing Institute, 2020

REFERENCES

Prof. Thomas Magnanti

Institute Professor and Professor of Operations Research at the MIT Sloan School of Management, Current Supervisor
Email: magnanti@mit.edu

- -

Prof. James B. Orlin

E. Pennell Brooks (1917) Professor in Management and Professor of Operations Research at the MIT Sloan School of Management
Email: jorlin@mit.edu

- -

Dr. Robert Stoner

Founding Director, MIT Tata Center for Technology and Design & CEO of the Kendall Square Project
Email: stoner@mit.edu