Arnav Gautam, Ph.D.
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Education

Doctor of Philosophy: Engineering and Public Policy
Carnegie Mellon University

Master of Science: Engineering and Public Policy
Carnegie Mellon University

Bachelor of Science: Electrical Engineering and Computer Science
University of California, Berkeley

Bachelor of Arts: Cognitive Science
University of California, Berkeley

Work Experience

Senior Consultant, Current Energy Group, (October 2025 – Present)
- Conduct technical modeling and analysis of electric distribution grid plans to support expert testimony in regulatory proceedings.
- Assess integration strategies for distributed energy resources (DERs), including solar, storage, and demand response, across diverse utility territories.
- Evaluate external utility and stakeholder proposals for technical feasibility, rigor, and alignment with best practices in grid planning.
- Translate complex engineering assessments into accessible insights for legal, regulatory, and policy audiences.
- Collaborate with multidisciplinary teams to develop evidence-based recommendations for grid modernization.

Graduate Research Assistant, Carnegie Mellon University (August 2021 – August 2025)
- Modeled techno-economic impacts of new technologies on grid assets to inform operational and planning decisions for distributed energy resources.
- Integrated a multi-criteria decision analysis framework into the planning process to evaluate innovative grid modernization solutions, considering economic, environmental, and social objectives.
- Created a methodology to address three-phase unbalanced AC power flow issues, minimizing economic costs and guiding the adoption of new grid technologies.

Technical Research Aide, Argonne National Laboratory, (May 2023 – December 2023)
- Designed and validated policy-relevant optimization algorithms to support resilient energy system expansion, considering market design and incorporating metrics for outage risk assessment.
- Developed and implemented a feedback loop for data-driven decision-making, integrating socioeconomic data to inform capacity expansion planning.
- Synthesized and presented complex technical results from a custom power flow model to stakeholders, assessing system vulnerabilities under stochastic outage scenarios.

Software Engineer, Clean Power Research, (March 2020 – July 2021)
- Designed and implemented a report generation pipeline in Python to automate analysis of weather data forecast accuracy, providing critical data for external stakeholders and informing real-time grid operations.
- Conducted a deep-dive analysis on a legacy PV simulation codebase, translating complex technical details to non-technical stakeholders to secure buy-in for a new system architecture.

Publications

A. Gautam, J. Grymes, A. Newman, D. Nock, A. Pandey (2025). Minimum-Cost Grid Distribution of Backup Power During Long-Duration Outages. *Optimization and Engineering*. http://doi.org/10.1007/s11081-025-10029-6

A. Gautam, D. Nock, A. Pandey (2024). Grid-Aware Tradeoff Analysis for outage mitigation microgrids at emerging Resilience Hubs. *IEEE Transactions on Energy Markets, Policy and Regulation*, vol. 2, no. 2, pp. 186-199. https://doi.org/10.1109/TEMPR.2024.3383369

K. Abiodun, A. Gautam, A. Newman, D. Nock, A. Pandey (2022). The Role of Microgrids in Advancing Energy Equity Through Access and Resilience. *INFORMS TutORials in Operations Research*, pp. 175-190. https://doi.org/10.1287/educ.2022.0244