

Braden Scott Pecora

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Education

- M.S. and Ph.D., Mechanical Engineering** *Expected 2027*
The University of Texas at Austin, GPA: 4.0/4.0
Advisors: Professors Kevin Clarno and Michael E. Webber
- B.S. with Highest Honors & Special Honors, Computational Engineering** Spring 2023
The University of Texas at Austin, GPA: 4.0/4.0
Japanese Certificate (*Expected* Spring 2024)
Thesis: Modeling Hydrogen Infrastructure with the HOwDI Model

Experience

- Graduate Research Assistant** Fall 2023 - Present
Computational Nuclear Energy Group, The University of Texas at Austin
- Contributing to software for multiphysics simulation of molten salt nuclear reactors.
- Undergraduate Research Assistant** Summer 2021 - Fall 2023
Webber Energy Group, The University of Texas at Austin
- Gathered data for, configured, and utilized power sector capacity expansion models to simulate investments in generation and transmission capacity for the Texas electricity grid.
 - Developed a proprietary Mixed-integer Linear Program (MILP) for modeling optimal investment in hydrogen infrastructure in an uncertain and developing market.
 - Graded assignments for a graduate division energy data analytics course.
- Data Scientist** Summer 2022
Ideasmiths, LLC
- Contributed to tools for gathering and processing geospatial data for power sector capacity expansion modeling.

Publications

E.A. Beagle, M. Lewis, **B. Pecora**, J.D. Rhodes, M.E. Webber, and R.E. Hebner, “Model to Inform the Expansion of Hydrogen Distribution Infrastructure,” *International Journal of Hydrogen Energy*, Volume 49, Part D, 2 January 2024, Pages 105-113. <https://doi.org/10.1016/j.ijhydene.2023.07.017>

Conference Presentations

B. Pecora. “Quantifying the Impacts of Weather Year Selection on Power Sector Capacity Expansion Models,” *ASME International Mechanical Engineering Congress & Exposition*, New Orleans, LA. November 2023.

Skills

- **Programming:**
 - High proficiency in writing readable and efficient Python code for data processing, visualization, and optimization (Pandas, GeoPandas, Matplotlib, Pyomo, NumPy, SciPy, Django, Flask).
 - Working proficiency in MATLAB, C++, Julia, SQL.
- **Software:** Microsoft Office, L^AT_EX, Git, OpenFOAM (CFD), Docker, Kubernetes, SOLIDWORKS.
- **Other:** Numerical methods, high performance computing, machine learning, finite element/finite volume methods, object oriented programming, engineering mechanics, fluid dynamics, heat transfer, nuclear engineering, electrodynamics, classical saxophone, intermediate Japanese language proficiency.

Updated December 2023