Edward M. Berman

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Education

- **Northeastern University** — Boston, MA
  Bachelor of Science Mathematics, Physics Minor — *May 2025*

Skills

- **Languages**: Python, Java, Matlab, R; HTML, CSS, JS
- **Frameworks**: TensorFlow, Numpy, Matplotlib, Qiskit, three.js
- **Platforms**: bash, Linux, LaTeX, git, wireshark

Research

- **Copos Lab, Northeastern College of Science** — Boston, MA
  Mathematical Modeling Research Assistant — *September 2022 - Present*
  - **Synthetic Data Generation**: Implement statistical methods to create data governed by random walks to match the system of a heated rod.
  - **Fine-tuning of Neural Network**: Feed data through a convolution Neural Network and fine tune the parameters to match the time evolution of the heat-energy distribution of the rod to a partial differential equation (PDE).
  - **Asymmetries and Real Data**: Strive to add asymmetries to the data set to simulate things learn how to generalize our model. Applications in Biology such as capturing cancerous cells through their PDE are being considered.
- **Airforce Research Laboratory, Griffiss Institute** — Rome, NY
  Deep Learning Research (VICEROY Intern) — *June 2022 - August 2022*
  - **Deep Learning Research**: Developed novel algorithms to classify and segment illegal fishing boats in water using the xView3 dataset. Utilized transfer learning on the VGG16 base model. Worked under Dr.Wu. Also assisted Harvard PhD candidates Andrew Sabot, Mark York, and Zergham Ahmed as they needed.
  - **DoD and Cyber training**: Solved challenge problems produced by various guests lecturers to round out my skill set in Cybersecurity and other areas the department of defense felt important to their long term goals.

Teaching

- **Northeastern College of Science** — Boston, MA
  MATH 2331 (Linear Algebra) Grader — *September 2022 - Present*
- **Northeastern MathEMA** — Boston, MA
  Student Mentor — *October - Present*

Projects and Publications

- **Mars ISRU Proposal**: Explored potential ways for a spaceship to extract Martian Ice Water and ways for said fuel to be transformed into propellant. Submitted proposal with my team to NASA as a part of the Rasc-al competition. Rasc-al Proposal
- **SoME1 Competition**: Competed to create the best math-explainer for the 2021 summer as a part of the Summer of Math Exposition Contest. Created a YouTube video explaining the parallels between the motion of a mass on a spring and the way that radios work. What a mass on a spring can tell us about the radio
- **Personal Website**: Implemented three.js to design a scrollable portfolio. bermanator.studio

Honors and Awards

- **Dean's List**: (Summer 2, 2022)
- **Dean's Scholarship**: (April 2021)

Conferences and Invited Talks

- **VICEROY Symposium**: Symposium Poster, Symposium Powerpoint, (Arlington VA, August 17th, 2022)