

## EDUCATION

### Northeastern University

Bachelor of Science Mathematics; Bachelor of Science Applied Physics

Boston, MA

09/21 - 06/25

## PUBLICATIONS

### ASTRONOMY

- **Edward Berman**, et al. : “Efficient PSF Modeling with ShOpt.jl: A PSF Benchmarking Study with JWST NIRCам Imaging” — Submitted to the Astronomical Journal.  
<https://arxiv.org/abs/2401.11625>
- **Edward Berman**, Jacqueline McCleary.: “ShOpt.jl : A Julia Package for Empirical Point Spread Function Characterization of JWST NIRCам Data” — Conditionally accepted to The Journal of Open Source Software (JOSS), will be published upon the acceptance of the AAS companion paper. <https://arxiv.org/abs/2310.00071>

### AI

- Federico Cassano, Luisa Li, Akul Sethi, Noah Shinn, Abby Brennen-Jones, Jacob Ginesin, **Edward Berman**, George Chakhnashvili, Anton Lozhkov, Carolyn Jane Anderson, Arjun Guha: “Can It Edit? Evaluating the Ability of Large Language Models to Follow Code Editing Instructions”— Submitted to the first annual Conference on Language Modeling — <https://arxiv.org/abs/2312.12450>
- Noah Shinn, Federico Cassano, **Edward Berman**, Ashwin Gopinath, Karthik Narasimhan, Shunyu Yao.: “Reflexion: Language Agents with Verbal Reinforcement Learning” — <https://arxiv.org/abs/2303.11366>

Google Scholar: [\[Link\]](#)

Orcid: <https://orcid.org/0000-0002-8494-3123>

## SOFTWARE, DATA SETS, AND BENCHMARKS

- ShOpt.jl: [\[Code\]](#)
- COSMOS-Web PSF Diagnostics: [\[Code\]](#)
- Can it edit?: [\[Benchmark\]](#)

## EMPLOYMENT

- **McCleary’s Group, Northeastern University** Boston, MA  
Researcher | Advised: Prof. Jacqueline McCleary 01/23 - Present
- **Northeastern Mathematics Department** Boston, MA  
Course Assistant: [MATH 4571](#) (Advanced Linear Algebra) 01/24 - 05/24
- **McCleary’s Group, Northeastern University** Boston, MA  
Astrophysics Research Co-op 07/23 - 12/23
- **Northeastern Summer Math Research Program (NSMRP)** Boston, MA  
REU | Mentor: Alon Duvall 05/23 - 07/23
- **Northeastern Mathematics Department** Boston, MA  
Course Assistant: [MATH 2331](#) (Linear Algebra) 08/22 - 12/22
- **Air Force Research Laboratory | Information Directorate** Rome, NY  
Contract | Mentor: Dr. Qing Wu 06/22 - 08/22

- **Griffiss Institute**  
VICEROY Intern

Rome, NY  
06/22 - 08/22

## INTERNATIONAL COLLABORATIONS & AFFILIATIONS

- **COSMOS-Web: The JWST Cosmic Origins Survey** PID: [1727](#)  
Lensing, Imaging, and Simulations Working Groups 01/23 - Present
- **Gamma Tau AI ( $\Gamma\tau$ )** Links: [\[GitHub\]](#) [\[Website\]](#)  
Member 09/23 - Present

## HONORS, AWARDS, AND FUNDING

- **PEAK Summit Award (\$3,000)** 01/24 - 04/24  
Northeastern Undergraduate Research and Fellowships
- **Physics Research Co-op Fellowship (50% cost share up to \$6,500)** 07/23 - 01/24  
Northeastern Physics Department
- **PEAK Ascent Award (\$1,050)** 05/23 - 07/23  
Northeastern Undergraduate Research and Fellowships
- **Research and Training Grant (\$4,500 REU Stipend)** 05/23 - 07/23  
National Science Foundation and Northeastern University
- **Dean's Scholarship (\$12,000 Annual)** 06/21 - 06/25  
Northeastern University
- **Symposium Travel Grant (Reserved for top 5 interns)** August 2022  
Griffiss Institute

PEAK: Project-based Exploration And Knowledge

## CONFERENCES AND INVITED TALKS (NOT INCLUDING REGULAR TELECOMS)

- **Columbia University — Invited Talk** New York, NY  
Efficient PSF Modeling and PSF Benchmarking March 19th, 2024
- **COSMOS 2023** Rochester, NY  
Empirical Characterization of the NIRCам Point Spread Function May 25th, 2023  
Joint with Jacqueline McCleary
- **Brown University — SUMS** Providence, RI  
Parameter Estimation of the PSF March 18th, 2023
- **VICEROY Symposium — Invited Talk** Arlington, VA  
VICEROY Research Talk August 17th, 2022
- **Northeastern University — RISE Expo** Boston, MA  
Shear Optimization with ShOpt Upcoming

## SERVICE AND EXTRA CURRICULARS

- **How to Read a Research Paper Introductory Workshop** Boston, MA  
Lead Organizer March 23rd, 2023
- **GammaTau Weekly Reading Group ([Reading Group Archive](#))** [Hybrid] Boston, MA  
Lead Organizer 10/23 - Present
- **Mathematics Engagement and Mentorship Association ([NU MathEMA](#))** Boston, MA  
Secretary 10/22 - Present
- **Mathematics Diversity and Inclusion Committee** Boston, MA  
MathEMA Representative 10/22 - Present
- **COS Student Leadership Council** Boston, MA  
General SLC Representative 06/23 - Present

# COURSEWORK

---

- **PhD Level:** Riemannian Optimization, Optimization and Complexity
- **Masters Level:** General Relativity and Cosmology
- **Advanced Undergraduate:** Advanced Group Theory, Advanced Probability and Statistics, Advanced Linear Algebra