

# ELEFThERIA BERES

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## EDUCATION

**Northwestern University**, Evanston, IL  
Bachelor of Science: Computer Science

Expected Graduation Date: Jun 2024  
Cumulative GPA: 3.99

## RESEARCH EXPERIENCE

### Undergraduate Researcher: Xenobot Lab

Northwestern University Center for Robotics and Biosystems

Feb 2023-  
*Evanston, IL*

**Project Maia** Designed and developed platform for simulating rigid-body virtual robots with the ability to grow as they behave in surroundings. Built tool allowing researchers to explore how evolutionarily optimized growth impacts the ability of simulated robots to learn and perform various behaviors. Presented work to CS Department at Summer Undergraduate Research Symposium.

**ESRoCKit** Developed Julia and Python libraries to help build out the simulated robotics software ecosystem. Wrote Python library to control simulated robots using neural networks and Julia library to create robot definition files for physics simulators.

### Undergraduate Researcher: Leonard Lab

Northwestern University Center for Synthetic Biology

Dec 2021-  
*Evanston, IL*

**PyFlowBAT: An Open-Source Python Package for Flow Cytometry Batch Analysis** Conceptualized and developed Python package for easy-to-use, rapid flow cytometry data analysis for synthetic biologists. Collaborated iteratively with Ph.D. students and postdoctoral researchers at Northwestern to add features, ensure accurate results, and improve library accessibility and usability for non-computer scientists. Presented project goals and progress in Leonard Lab group meetings Lead publication writing for PyFlowBAT paper—paper writing in progress, targeting early 2024 submission. Presented poster on PyFlowBAT at the Engineering Biology Research Consortium Annual Meeting 2023.

## PUBLICATIONS

### Poster Presentations

1. **Beres E**, et al. **PyFlowBAT: An Open-Source Software Package for Performing High-Throughput Batch Analysis of Flow Cytometry Data**. Poster presented at: EBRC Annual Meeting; 2023 Jun 5-6; Evanston, IL.

### Manuscripts in Preparation

1. Beres, E., Dreyer, K., Edelstein, H., Dray, K., & Leonard, J. **PyFlowBAT: An Open-Source Software Package for Performing High-Throughput Batch Analysis of Flow Cytometry Data**. Manuscript in preparation.
2. Dray, K., Edelstein H., Bora, G., Draut J., Kotzbauer, E., Beres, E., Muldoon, J., Lim, B., Schreiber, Y., Shah, P., Feng, S., Chen, A., Bagheri, N., Donahue, P., & Leonard, J. **Context-aware design of genetic programs**. Manuscript in preparation.

## HONORS AND AWARDS

### Summer Undergraduate Research Fellowship

Northwestern University Department of Computer Science

Summer 2023  
*Evanston, IL*

### Summer Undergraduate Research Grant

Northwestern University Office of Undergraduate Research

Summer 2022, Summer 2023  
*Evanston, IL*

## TEACHING

### Peer Mentor: GEN\_ENG 205-1: Engineering Analysis 1

Northwestern University Department of Electrical Engineering

Sept 2023-  
*Evanston, IL*

Lead weekly group discussions over MATLAB homework assignments focusing on teaching how to break engineering problems into algorithmic steps and translate those steps into MATLAB code. Teach students linear algebra foundations and basic computational modeling in engineering. Guide students in using documentation and basic MATLAB debugging.

### Peer Mentor: BMD\_ENG 220: Introduction to Biostatistics

Northwestern University Department of Biomedical Engineering

Sep 2022-Dec 2022, Sep 2023-  
*Evanston, IL*

Answer student questions, clarify confusing probability topics, and guide students on using Python to perform statistical tests during two weekly office hours virtually and in person. Facilitate students' understanding of statistical methods with a specific focus on practical applications to biomedical engineering experiments. Support teaching team with using Python and Jupyter. Wrote guides for how to use the basics of Python and Jupyter Notebooks for biomedical engineering students.

### Peer Mentor: DATA\_ENG 200: Foundations of Data Science

Northwestern University Department of Computer Science

Jan 2023-Mar 2023  
*Evanston, IL*

Answered student questions and facilitated learning of data science and data engineering in Python during three weekly office hours and on online course platform. Helped teach students data analysis, visualization, and computational problem-solving.