

HAILIE MITCHELL

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EDUCATION

Dickinson College, May 2024

B.S. in Computer Science

Overall GPA: 3.97

Relevant Courses:

- *Core CS:* Analysis of Algorithms, Programming Languages, Networks, Computing and Complexity, Large-Scale and Open-Source Software Development, Computing Abstractions, Tools and Techniques for Software Development, Data Structures and Problem Solving, Principles of Object-Oriented Design
- *Electives:* Artificial Intelligence, Introduction to Data Analytics, Topics in Data Mining
- *Mathematics:* Abstract Algebra, Operations Research, Linear Algebra, Discrete Mathematics, Multivariable Calculus, Elementary Statistics

RESEARCH EXPERIENCE

Software Engineering REU at Carnegie Mellon University

June 2023-Present

Efficient Bug Finding in Robotic Deep Learning

- Worked with a doctoral student to develop a new testing methodology for CNNs using differentiable rendering in adversarial attacks to find vulnerabilities in grasp quality convolutional neural networks for robotic arm grasps
- Currently continuing my work as an Honors Thesis project at Dickinson College building the differentiable model prediction pipeline and adversarial attack perturbing 3D data
- Strengthened skills with Python, Docker, Pyro4, PyTorch, PyTorch3D, and Tensorflow, especially by converting a Tensorflow model to PyTorch

Software Engineering REU at Carnegie Mellon University

June 2022-May 2023

Automated Software Refactoring with AI

- Developed the MELT tool with a doctoral student to automatically update deprecated API calls for Python libraries by inferring rewrite rules to ease burden on developers
- Personally worked on rule generalization process to ensure rules match diverse developer API usage and led the evaluation of tool on developer repositories from GitHub
- Wrote and submitted a two-page paper about the project to the 37th IEEE/ACM International Conference on Automated Software Engineering (ASE 2022) Student Research Competition (SRC)
- Presented a poster at the ASE 2022 SRC and won first place for undergraduates
- Continued work with doctoral student to finish the tool and write a full paper accepted to ASE 2023

PUBLICATIONS

MELT: Mining Effective Lightweight Transformations from Pull Requests

38th IEEE/ACM International Conference on Automated Software Engineering (ASE'23)

Daniel Ramos, **Hailie Mitchell**, Inês Lynce, Vasco Manquinho, Ruben Martins, Claire Le Goues

<https://doi.org/10.48550/arXiv.2308.14687>

Automatically Fixing Breaking Changes of Data Science Libraries

37th IEEE/ACM International Conference on Automated Software Engineering (ASE'22)

Hailie Mitchell

<https://dl.acm.org/doi/10.1145/3551349.3559507>

TEACHING EXPERIENCE

Computer Science Grader, Dickinson College, 2022-Present

- Graded assignments for the Computing Abstractions (Computer Architecture) class for two semesters with two different professors

Undergraduate Computer Science Tutor, Dickinson College, 2022-Present

- Tutored other undergraduate students in a drop-in style help room for introductory computer science classes including Introduction to Computing in Python and Data Structures in Java

Elementary, Middle, and High School Tutor, 2018-2021

- Helped students ranging from elementary age to high school age in Math and English
- Tutored through Eastside Catholic High School, Kumon, Mathnasium, and privately

TECHNICAL SKILLS

Programming Languages: Python, Java, R

Tools/Frameworks: Git, VSCode, Docker, PyTorch, PyTorch3D, Pyro4

AWARDS/HONORS

Dean's List, Dickinson College, 2020-2024

Upsilon Pi Epsilon, Dickinson College, 2021-2024

International Honor Society for the Computing and Information Disciplines

Alpha Lambda Delta Honor's Society, Dickinson College, 2021-2024

Richard Howland Memorial Scholarship, Dickinson College 2023

ASE SRC Undergraduate Winner, ASE 2022

Stafford Scholarship, Dickinson College 2022

Jane Hill Prize in Computer Science, Dickinson College 2021

EXTRACURRICULAR ACTIVITIES

Dickinson Equestrian Team

- Co-captain (2023-2024)
- Treasurer (2022-2023)
- Member (2021-2024)