# Aria Harley Software Engineer

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## SKILLS

**Languages** – JavaScript/TypeScript, Rust, Python
**Technologies** – Docker, PostgreSQL, React Native, PyTorch

## WORK EXPERIENCE

05/2024 – 07/2024: **ML Engineering Intern** at AcousticSheep LLC

- Independently developed an offline system for tagging and captioning over 60,000 internal image assets by deploying vision foundation models.
- Developed a semantic indexing/search system that outperformed existing keyword-based solutions in accuracy tests, integrating diverse content types including image assets, work dockets, chat logs, and internal documentation.
- Integrated vision models and semantic search to automate marketing workflows, reducing manual image tagging and copy development time by eliminating repetitive tasks.

11/2022 – 05/2024: **Software Engineer** at Penn State Behrend Innovation Commons

- Worked with local entrepreneurs to develop React Native mobile applications alongside NodeJS/TypeScript backend server software.
- Deployed and interfaced with PostgreSQL databases for scalable web service development.
- Used Docker containerization to simplify cloud deployment and improve consistency between development and production environments.

08/2023 – 12/2023: **Research Assistant** at Penn State Behrend

- Developed a Rust compiler plugin for a National Science Foundation-funded study on the usage of unsafe code in embedded Rust projects. Advisor: Dr. Chen Cao.
- Built static analysis tools that identified unsafe code patterns across the Rust ecosystem, analyzing over X thousand packages to support NSF research on embedded systems security.

## EDUCATION

**B.S. Computer Science** – Penn State Erie, The Behrend College – GPA 3.10/4.00, 08/2021 – 05/2025
**Relevant Coursework** – Operating Systems, Web Services, Networking, Machine Learning

## PROJECTS

**HackPPO**

- Built a system to perform “Reinforcement Learning From Verifiable Rewards”, a recent language model post-training technique.
- Developed custom value model architecture using PyTorch, using transfer learning from open-source language models to quickly develop classification for further generation policy optimization.
- Trained a proof-of-concept model, which demonstrated notable improvements in capabilities on arithmetic domains.

**NuGrad**

- Built a scalar-value automatic differentiation (autograd) engine from scratch to understand the mathematical foundations of modern machine learning frameworks.
- Recreated a subset of the PyTorch API to allow easy construction of complex mathematical expressions.

**ASU/NASA Psyche Public Outreach**

- Worked with other students to develop a simulation of a speculative future mission to return samples from the metallic asteroid Psyche following the orbital mission launched in 2023.
- Created a Godot-based interactive simulation of the sample return portion of the mission to garner public interest in the project.

**“Fractureiser” Mitigation**

- Worked with community members to mitigate the spread of a self-replicating malware threat infecting Java JAR files, primarily targeting video game communities.
- Discovered a command-and-control server and worked with cloud providers to shut down distribution of the malware.