

# Ceferino Patino

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## Objective

Aspiring computer scientist eager to continue learning and develop practical skills through meaningful industry experience.  
Seeking opportunities to apply my software development knowledge while contributing to innovative projects.

## Education

<b>B.S. Computer Science</b> <i>University of Nebraska – Lincoln</i>	Lincoln, NE, United States <i>May 2024 – May 2026</i>
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## Honors and Awards

<b>Undergraduate Student Researcher Award</b>	University of Nebraska – Lincoln <i>2025</i>
<b>Dean's List</b>	University of Nebraska – Lincoln <i>Fall 2024 - Spring 2025</i>

## Skills

**Languages:** Python, C++, Rust, JavaScript, Lua, Bash, SQL, Nix, Go, Java

**Frameworks & Libraries:** PyTorch, OpenCV, Astro, React, Express.js

**Tools & Platforms:** Docker, Git, Nix/NixOS, Maturin, MPI, HDF5, AWS, Django

**Concepts:** Machine Learning, RL/MARL

**Software Engineering:** SOLID, Agile, SCRUM, CI/CD, DevOps, Parallel Programming

**Soft Skills:** Team collaboration, Technical communication, Self-directed learning, Mentorship

## Certifications

<b>AWS Certified Cloud Practitioner</b>	Amazon Web Services <i>October 2023 – May 2026</i>
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## Experience

<b>OASYS Lab – University of Nebraska – Lincoln</b> <i>Undergraduate Researcher</i>	Lincoln, NE, United States <i>May 2024 – Present</i>
<ul style="list-style-type: none"><li>○ Developed <code>free-range-zoo</code>, an open-environment MARL benchmark suite with support for MADDPG, COMA, and GNN-based policies.</li><li>○ Enabled dynamic agent/task/frame adaptation for open-system evaluation; used by 20+ international researchers.</li><li>○ Developed <code>free-range-rust</code>, a Rust+CUDA backend to accelerate <code>free-range-zoo</code>, doubling environment performance.</li><li>○ Integrated Python bindings with Maturin to expose custom CUDA logic for seamless use in RL workflows.</li><li>○ Co-led MOASEI competition at AAMAS 2025 with 10+ teams, benchmarking MARL agents in open-agent/task settings</li></ul>	

<b>Raman Lab – Washington University</b> <i>Software Developer</i>	Remote <i>June 2024 – Present</i>
<ul style="list-style-type: none"><li>○ Developed real-time imaging software for a 3D 2-photon lightsheet microscope processing 20 GB/s of image data.</li><li>○ Designed parallel MPI/HDF5 data acquisition and OpenCV pipelines for volumetric dataset processing.</li></ul>	

<b>Danforth Plant Science Center</b> <i>Software Developer</i>	St. Louis, MO, United States <i>December 2023 – August 2024</i>
<ul style="list-style-type: none"><li>○ Developed real-time imaging software for a 3D 2-photon lightsheet microscope processing 20 GB/s of image data.</li><li>○ Designed parallel MPI/HDF5 data acquisition and OpenCV pipelines for volumetric dataset processing.</li></ul>	

## Open Source Contributions

<b>nixpkgs</b> <i>Contributor &amp; Package Maintainer</i>	NixOS Project <i>May 2025 – Present</i>
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- Contribute to nixpkgs with improvements, reviews, and new package additions
- Collaborate with the community to ensure package quality and build reproducibility

<b>nixvim</b> <i>Maintainer</i>	NixOS Project <i>May 2025 – Present</i>
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- Maintain Nixvim, a modular Neovim compatibility port for Nix
- Add plugin support for popular vim plugins and neovim integrations and improve docs for the community

<b>Turso</b> <i>Contributor &amp; Package Maintainer</i>	Distributed Edge Database <i>2025</i>
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- Fixed a core bug in Turso, a distributed edge database built on libSQL, improving reliability for production users
- Collaborated with maintainers to review, test, and merge the fix into the main codebase
- Engaged with the open-source community to ensure robust, high-quality contributions

## Projects

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<b>cpatino.com</b>	Personal
Web Development – <i>JavaScript, Astro</i>	May 2025 – Present
◦ Built and deployed a personal site with Astro, optimized for minimal bundle size and fast loads	
<b>yumevim – "dream vim"</b>	Personal
Dev Tooling – <i>Lua, Nix, Neovim</i>	July 2024 – Present
◦ Architected a modular, declarative Neovim configuration with Lua and Nix for reproducible setups across devices	
◦ Implemented zero-downtime updates with atomic rollbacks using Nix flakes and Git	
<b>3D Volumetric 2-Photon Lightsheet Microscope</b>	Raman Lab – Washington University
Biotechnology / Microscopy – <i>C++, MPI, HDF5, OpenCV</i>	June 2024 – Present
◦ Developed software for a cutting-edge 3D volumetric 2-photon lightsheet microscope—one of few worldwide	
◦ Built parallel data acquisition pipelines with MPI and HDF5 handling 20 GB/s of image data	
◦ Optimized imaging workflows with OpenCV for real-time processing of volumetric datasets	
<b>free-range-zoo</b>	OASYS Lab – University of Nebraska – Lincoln
AI / Reinforcement Learning – <i>Python, PyTorch</i>	April 2024 – Present
◦ Developed open-environment benchmarks for POSG-based multi-agent RL (wildfire, cybersecurity, rideshare)	
◦ Implemented vectorized training loops for MADDPG, COMA, and GNN-based RL policies	
◦ Enabled dynamic agent/task/frame changes to benchmark adaptability in open systems	
◦ Used by 20+ researchers internationally as a benchmark RL algorithms in multi-agent environments	
<b>free-range-rust</b>	OASYS Lab – University of Nebraska – Lincoln
AI / Reinforcement Learning – <i>Rust, CUDA, Maturin</i>	April 2024 – Present
◦ Implemented custom CUDA kernels in Rust to accelerate dynamic RL environments	
◦ Doubled performance of <b>free-range-zoo</b> through low-level vectorized space operations	
◦ Exposed Rust/CUDA modules to Python via Maturin for seamless integration and use by other research groups	
<b>yumeami – "dream network"</b>	Personal
DevOps – <i>Nix, NixOS</i>	April 2024 – Present
◦ Engineered modular NixOS configurations with separate system and home profiles across heterogeneous hardware	
◦ Developed a self-hosted infrastructure integrating services, CI/CD pipelines, and custom tooling for automation	
◦ Implemented declarative provisioning and deployment workflows enabling reproducible, scalable environments	
<b>Fonio Seed Computer Vision</b>	Donald Danforth Plant Science Center
Computer Vision – <i>Roboflow, OpenCV</i>	April 2024 – August 2024
◦ Compiled and labeled a dataset of over 8,000 fonio seed images for robust model training	
◦ Implemented a neural network achieving 99% accuracy in detecting overlapping seeds and providing precise counts	
<b>Rhizoroot.ai</b>	Donald Danforth Plant Science Center
Computer Vision / Agricultural AI – <i>PyTorch, OpenCV, Django, Docker</i>	December 2023 – August 2024
◦ Developed a Django interface to run segmentation and extrapolate root volume	
◦ Built root segmentation models using PyTorch for high-resolution root image data	
◦ Processed segmentation masks with OpenCV to compute volumetric estimates achieving 97% accuracy	
<b>FieldDock</b>	Donald Danforth Plant Science Center
Computer Vision / Agricultural AI – <i>OpenCV, Docker, AWS</i>	December 2023 – May 2024
◦ Deployed multiple components of a high-throughput drone data collection system using Docker and AWS	
◦ Developed flight software for drone vision and landing leveraging OpenCV	
<b>qOverflow</b>	Black Data Processing Associates (BDPA)
Web Development – <i>JavaScript, MongoDB, React, Express.js, Node.js</i>	June 2022 – August 2022
◦ Won first place in 2022 BDPA hackathon developing a Stack Overflow-inspired Q&A platform with custom analytics	
◦ Containerized the app using Docker and deployed on Kubernetes; documented APIs with SwaggerHub	
<b>hypixel-helper</b>	Personal
Web Development – <i>JavaScript, React, Redis</i>	April 2022 – May 2022
◦ Built live tracking and forecasting of Hypixel Skyblock marketplace data using SARIMA	

## Publications

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<b>Inaugural MOASEI Competition at AAMAS'2025: A Technical Report</b>	arXiv:2507.05469
Patino C., Billings T., Abadi A., Redder D., Eck A., Doshi P., Soh L.	2025