

Lute Lillo Portero

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Summary

PhD researcher in Computer Science specializing in continual learning, reinforcement learning, and open-endedness. My research investigates how learning systems adapt to non-stationary environments, developing and evaluating methods to preserve adaptability through optimization, architectural changes, and behavioral diversity. My work combines empirical deep learning research with hands-on implementation and rigorous experimental evaluation, with publications at ICLR, AAAI, CoLLAs, and GECCO.

Education & Research Experience

University of Vermont • Burlington, VT 2024 – Present
Ph.D. in Computer Science Advisor: Nick Cheney

Graduate Research Assistant, Neurobotics Lab

- Designed two activation functions to mitigate loss of plasticity; evaluated their effectiveness across supervised continual learning and non-stationary MuJoCo RL benchmarks ([ICLR 2026](#)).
- Identified an optimization bottleneck in structural plasticity where newly grown neurons remain forward-active but receive weak gradients; investigated growth, pruning, and optimizer-state interventions ([Preprint](#)).
- Developed a quality-diversity framework for continual RL that maintains diverse, reusable policies in a shared latent space, improving learning, and behavioral coverage under non-stationary conditions ([CoLLAs 2026](#), [Oral](#)).

University of Nebraska at Omaha • Omaha, NE Dec 2023
M.S. in Computer Science Advisor: Jorge Fandinno | GPA: 4.0/4.0

Graduate Research Assistant, NLPKR Lab

- Co-developed a propagation-based solver for epistemic logic programs using Answer Set Programming (ASP), leveraging SAT-inspired conflict-driven solving through clingo and achieved a 3.3x speedup compared with the previous epistemic logic solver ([AAAI 2025](#), [Oral](#)).

University of Nebraska at Omaha • Omaha, NE Dec 2022
B.S. in Computer Science, Minor in Mathematics GPA: 3.9/4.0

Professional Experience

Software Engineer Intern, Amazon – Denver, CO May 2023 – Aug 2023

- Developed back-end functionality in Java and JSP to support product variations in a bundle-widget feature for a catalog of 1M+ products.
- Implemented front-end components using JavaScript and CSS for the product-bundling feature.

Software Engineer in Test Intern, Hudl – Lincoln, NE May 2022 – Aug 2022

- Designed and executed automated tests using Python and Selenium, working with MongoDB-backed systems.
- Developed UI and API test designs and investigated failures using Sumo Logic in an Agile development team.

Teaching Assistant, University of Nebraska at Omaha Fall 2022, Fall 2023

- Data Structures (CSCI 3320) and Introduction to Artificial Intelligence (CSCI 4450).
- Mentored students on algorithms, data structures, and AI concepts through technical guidance, coursework support, and office hours.

Publications

- Lillo, Lute & Cheney, Nick. “On the Stability of Growth in Structural Plasticity: Forward-Active yet Backward-Starved”. [Preprint](#), submitted to ICLR 2027.
- Lillo, Lute & Cheney, Nick. “Beyond Single-Model Optimization: Preserving Plasticity in Continual Reinforcement Learning”. [CoLLAs 2026 \(Oral\)](#).
- Lillo, Lute & Cheney, Nick. “Activation Function Design Sustains Plasticity in Continual Learning”. [ICLR 2026](#).
- Lillo, Lute & Cheney, Nick. “Heterosis-Based Crossover: Leveraging Structural Differences to Control Diversity and Bloat in Genetic Programming”. [GECCO 2025 \(Companion\)](#).
- Fandinno, Jorge & Lillo, Lute. “Solving Epistemic Logic Programs using Generate-and-Test with Propagation”. [AAAI 2025 \(Oral\)](#).

- **Lillo, Lute & Ali, H.** “A Graph-Theoretic Approach for Examining Team Communities in Sports Transfer Markets”. [HICSS 2024](#).

Technical Skills & Additional Information

Research & Methods: Continual Learning, Reinforcement Learning, Neural Network Plasticity, Quality-Diversity, Evolutionary Computation, Open-Ended Learning, Representation Analysis.

ML Frameworks & Environments: PyTorch, JAX, TensorFlow, MuJoCo.

Programming: Python, Java, C, C#, Bash.

Systems & Tools: Linux, Git, SLURM, HPC, CUDA/GPU Computing.

Languages: English and Spanish (bilingual).

Athletics: Division I Men’s Soccer, 5 collegiate seasons.