

LUCAS DIONISOPoulos

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EDUCATION

University of California, San Diego , San Diego, CA <i>M.S. in Computer Science and Engineering: Thesis (AI / Machine Learning)</i>	Sep 2024 – Jun 2026
<ul style="list-style-type: none">▪ GPA: 4.0 / 4.0. Teaching Assistant (<i>4 quarters</i>)▪ Research: Working with Prof. Raj Ammanabrolu on applying reinforcement learning to large language models▪ Coursework: Statistical Natural Language Processing (A), Advanced Computer Vision (A+), ML for Robotics (A+), Systems for ML (A+), AI Agents (A+), Probabilistic Reasoning & Learning (A), Program Synthesis (A+)	
Self-Directed Study (<i>Blog with more detail</i>) <ul style="list-style-type: none">▪ Textbooks: Mathematics for Machine Learning (<i>Diesenroth</i>), Introduction to Linear Algebra (<i>Strang</i>), Discrete Mathematics (<i>Rosen</i>), Introduction to Algorithms (<i>CLRS</i>), Operating Systems: Three Easy Pieces (<i>Arpaci-Dusseau</i>), Reinforcement Learning (<i>Sutton & Barto</i>)▪ MOOCs: MIT Introduction to ML (6.036), UW Programming Languages A & B (<i>Coursera</i>)▪ UW-Madison (Part-time Spring 2024): Matrix Methods in ML (A), Non-Linear Optimization (<i>Audit</i>)	Feb 2023 – Sep 2024

Washington University in St. Louis , St. Louis, MO <i>B.S.B.A. Major in Finance, Minor in Computer Science</i>	Aug 2017 - May 2021
<ul style="list-style-type: none">▪ GPA: 4.0 / 4.0. Valedictorian, <i>Summa Cum Laude</i>. Teaching Assistant (<i>6 semesters</i>)▪ Faculty-Nominated Awards: Poets&Quants 2021 Best & Brightest (<i>Article</i>), John W. Bowyer Award in Finance▪ Coursework: Data Structures & Algorithms (A+), Rapid Prototype Development (A), Computer Networks (A+)	

RESEARCH & SELECT PROJECTS

Reasoning Through Chess: How Reasoning Evolves from Data Through Fine-Tuning and Reinforcement Learning (<i>Link</i>) [<i>NeurIPS 2025 FoRLM Workshop – Oral</i>]	Sep 2025
<ul style="list-style-type: none">▪ Lead author. Outperformed state-of-the-art open-source reasoning models in chess through SFT and RL on a 7B-parameter language model using custom SFT datasets and RL tasks (trained on NVIDIA A100 and H100 GPUs)▪ Involved multi-GPU training (Megatron / FSDP for both SFT and RL), multi-node inference, synthetic data generation, LLM-as-a-judge, custom Docker images, and automated scripts on a production Slurm cluster	
Neural Guided A* Search for the ARC-AGI Benchmark (<i>Link</i>)	Dec 2024
<ul style="list-style-type: none">▪ Attempted novel neurosymbolic strategy for the ARC challenge using techniques from program synthesis▪ Developed a synthetic data generation pipeline, implemented and trained a custom vision transformer using PyTorch, generated and analyzed semantically meaningful image embeddings from the model, and optimized the custom model to run on various NVIDIA GPUs	

Select Projects

- **Dungeon Coder** (*Link*): Led development on a full-stack webapp (*React, Three.js*) combining image generation and image-to-3D asset models to create custom assets you can place in interactive dungeons or 3D print. Self-hosted computer vision models (NVIDIA L40) with custom Docker images and Flask APIs. Created a dungeon generator to turn a prompt into an interactive 3D dungeon using classical algorithms and an LLM agent
- **Reinforcement Learning Driver** (*Link*): Built and optimized a driving game in Python (*Pygame*) from scratch and trained a reinforcement learning agent using Double Q-learning in PyTorch to navigate unseen tracks

SELECT WORK EXPERIENCE

Contracting	Sep 2024 – Nov 2024
<ul style="list-style-type: none">▪ Machine Learning Anomaly Detection (<i>Link</i>): Developed an anomaly detection system for a San Diego healthtech company. Notable elements include the creation of custom evaluation sets, data cleaning techniques for noisy real-time data, implementation of kernel regression, and creation of interpretable anomaly flags	
Financial Technology Partners , San Francisco, CA <i>Investment Banking Analyst</i>	Jun 2020 – Jun 2023
<ul style="list-style-type: none">▪ Core developer of operating models, financial projections, valuation & returns analyses, diligence presentations, and large-scale data analyses on client datasets▪ Managed teams of analysts on large projects and worked directly with client executives as a key contact▪ Developed internal tooling to improve analyst efficiency and led training sessions for incoming analyst classes▪ Select transaction experience: Velocity Global \$400mm Series B, Circle Internet Financial \$25mm Financing	

PROGRAMMING SKILLS & OTHER

- **Languages:** Proficient with Python; experience with C, Java, JavaScript/TypeScript, SQL, Triton (GPU kernels), Bash, SML, PHP, Racket, HTML, CSS
- **Skills:** AWS, Git, Docker, Anaconda, uv, Linux, Weights & Biases, Hugging Face, CUDA / cuBLAS / NCCL, PyTorch, vLLM, ROS 2, Scikit-learn, NumPy, Pandas, SSH, Flask, React, Express, object-oriented programming, full-stack development, Microsoft Excel and PowerPoint
- **Volunteering:** Led an initiative in 2021 that cleaned 21 parks by engaging 100+ volunteers in St. Louis (*Link*)
- **Interests:** Rock climbing (*bouldering, sport & traditional*), through-hiking, beekeeping, science fiction
- **Miscellaneous Awards:** Eagle Scout, 6x Nebraska Class-A State Tennis Runner-Up