

LUCAS DIONISOPOULOS

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EDUCATION

University of California, San Diego, San Diego, CA

Sep 2024 – Jun 2026

M.S. in Computer Science and Engineering: Thesis (AI / Machine Learning)

- **GPA:** 4.0 / 4.0. Teaching Assistant (4 quarters)
- **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 (*Blog with more detail*)

Feb 2023 – Sep 2024

- **Textbooks:** Mathematics for Machine Learning (*Diesenroth*), Introduction to Linear Algebra (*Strang*), Discrete Mathematics (*Rosen*), Introduction to Algorithms (*CLRS*), Operating Systems: Three Easy Pieces (*Arpaci-Dusseau*), Reinforcement Learning (*Sutton & Barto*)
- **MOOCs:** MIT Introduction to ML (6.036), UW Programming Languages A & B (*Coursera*)
- **UW-Madison (Part-time Spring 2024):** Matrix Methods in ML (A), Non-Linear Optimization (*Audit*)

Washington University in St. Louis, St. Louis, MO

Aug 2017 - May 2021

B.S.B.A. Major in Finance, Minor in Computer Science

- **GPA:** 4.0 / 4.0. Valedictorian, Summa Cum Laude. Teaching Assistant (6 semesters)
- **Faculty-Nominated Awards:** Poets&Quants 2021 Best & Brightest (*Article*), 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 (*Link*) [*NeurIPS 2025 FoRLM Workshop – Oral*]

Sep 2025

- 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 (*Link*)

Dec 2024

- 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

- **Machine Learning Anomaly Detection (*Link*):** 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

Jun 2020 – Jun 2023

Investment Banking Analyst

- 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