

## EDUCATION

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- 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

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- How Reasoning Evolves from Post-Training Data in Sequential Domains** (*Link*) **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

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- 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

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- **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, 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