

Thomas Reeves III

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Education

University of Southern California

Doctor of Philosophy in Computer Science
Advisor: Prof. Corey Baker

Los Angeles, CA, USA
Beginning Aug 2024

University of Southern California

Master of Science in Computer Science & Artificial Intelligence, GPA: 3.06

Relevant Coursework: Applied Natural Language Processing, Deep Learning and its Applications, Robot Learning (Ph. D Level), Analysis of Algorithms, Machine Learning

Los Angeles, CA, USA
Aug 2022 – May 2024

University of California, Irvine

Bachelor of Science in Computer Science, GPA: 3.25

Relevant Coursework: Machine Learning and Data Mining, Project in AI, Computer Graphics, Computer Photo and Vision, Project in Computer Vision, Neural Networks and Deep Learning

Irvine, CA, USA
Sep 2018 – Jun 2022

Work Experience

- **USC Learning and Interactive Robot Autonomy Lab (LiraLab)** Los Angeles, CA, USA
Graduate Student Researcher
Advisor: Prof. Erdem Biyik
Sep 2023 – Present
 - Researching visual pre-training for robot manipulation; using **imitation learning**, vision and language models, and state-of-the-art architectures such as **generative pre-training transformers (GPT)** to reduce amount of robot data used in training.
 - Ran experiments using pre-trained model to measure success rate compared to baselines Voltron and R3M; method converges at least 45% faster and meets or exceeds baselines' success rate in 8 Meta-World environments when fine-tuned with one-shot behavioral cloning from robot demonstrations
 - Conducting experiments to evaluate method's success rate and data efficiency in **online reinforcement learning** settings
- **USC, iLab** Los Angeles, CA, USA
Graduate Student Researcher
Advisor: Prof. Laurant Itti
Nov 2022 - Present
 - Researching several topics, including **unsupervised skill discovery**, **robot learning** with **contrastive rewards**, and future frame prediction pre-training for **robot manipulation imitation learning**. Responsible for implementing methods and running experiments
 - Leveraging future frame video prediction models preconditioned on human manipulation data to bypass need for real robot data in robotic manipulation training.
 - Collected teleoperation dataset, pre-trained, fine-tuned and evaluated large-scale next frame prediction models using behavioral cloning on one video demonstration. Method converges up to 78% faster than baselines
- **University of California Irvine, Intelligent Dynamics Lab (IndyLab)** Irvine, Ca, USA
Undergraduate Student Researcher
Advisor: Prof. Roy Fox
Dec 2021 – May 2023
 - Researching and developing a novel supervised learning application **achieving 90-99% accuracy** in designing a wide variety of analog circuits; responsible for writing and presenting **paper published to ICML 2023**.
 - Applying machine learning methods and increasing data efficiency by over an order of magnitude
- **University of California Irvine, Wayne Hayes Group** Irvine, Ca, USA
Undergraduate Student Researcher
Advisor: Prof. Wayne B Hayes
Oct 2020 - Jun 2022
 - Creating new and fixing existing objective measures in C++ for Multi-SANA Project an extension of SANA Algorithm used to topologically align multiple graph networks
- **Intuit QuickBooks** Mountain View, CA, USA
Software Engineer Intern
Summer 2020, 2021, 2022

- Collaborating with cross functional teams to develop new and exciting customer experiences

Refereed Conference Publications

1. Dmitrii Krylov, Pooya Khajeh, Junhan Ouyang, **Thomas Reeves**, Tongkai Liu, Hiba Ajmal, Hamidreza Aghasi, Roy Fox. *Learning to Design Analog Circuits to Meet Threshold Specifications*. 40th International Conference on Machine Learning (ICML 2023), 2023. [arXiv:2307.13861]

Selected Projects

- **Masked Auto Encoding Decision Transformer**

- Led a project focused on improving Decision Transformer model for robot learning, implementing a novel training approach during Ph. D level course CSCI 699 Robot Learning at USC.
- Reimplemented Decision Transformer as a masked auto-encoder, increasing performance by 35% in test environment. Leading all aspects of project including problem formulation, method development, and experiment design and execution.

- **KinGAN:**

- Trained a conditional variational auto-encoder as part of a larger computer vision model used to generate images of children conditioned on age, gender, and images of both parents; model recreates and produces multiple child images compared to previous works only capable of creating one fixed output

Honors & Awards

- **2023 GEM Fellow**

- Full tuition fellowship provided by USC and National GEM Consortium

- **Black in AI ELAI Fellow**

- Fellowship recipient. Accepted to Black in AI: Emerging Leaders in AI program. A Ph.D. prep program pairing fellows with mentors at top research universities. Only 130 of over 500 applicants were selected

Volunteering and Extracurriculars

- **AI4Afrika**

Irvine, CA, USA; 2019 - 2022

- Volunteer for a community outreach program aiming to bring more diversity and inclusion to the AI research community. Participated in organizing and hosting events

Poster Presentations

- **Learning to Design Analog Circuits to Meet Threshold Specifications**

- 40th International Conference on Machine Learning (ICML) (2023 – poster)