Kolby Nottingham
Computer Science PhD Candidate

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Education

University of California Irvine   **Sep 2020 – present**
PhD, Computer Science

- Coursework in ML, RL, NLP, probabilistic learning, and generative models
- Co-advized by Roy Fox and Sameer Singh

Brigham Young University   **Jan 2017 – April 2020**
BS, Computer Science & Mathematics Minor

- 3.99 GPA, Graduated Cum Laud and with University Honors

Research Experience

Riot Games, Tech Research   **June 2024 – Sep 2024**
Research Scientist Intern

- Will work to develop generative game AI prototypes

Allen Institute for AI, Aristo Team   **Sep 2023 – Feb 2024**
Research Intern, PhD

- Researched continual in-context policy improvement for LLMs
- Submitted project to ICML 2024

Latitude Games   **June 2023 – Sep 2023**
Artificial Intelligence Research Intern

- Developed new AI models that were preferred 2x over original
- Designed implicit user feedback metrics for learning user preference
- Implemented Learning from Human Feedback pipeline for model finetuning

Unity Technologies   **June 2021 – Aug 2021**
Applied Machine Learning Research Intern

- Developed continuous diversity-based approach for behavior tuning w/ Soft Actor Critic
- Contributed to Unity ml-agents public repository (python/C#)

NVIDIA, Applied Deep Learning Research   **May 2020 – Sep 2020**
Deep Learning Research Intern

- Applied deep RL to chip design placement w/ IMPALA

USC, Verification Intelligence Design and Analysis Lab   **May 2019 – Aug 2019**
Visiting Researcher

- Designed multi-objective DQN agent conditioned on logical specifications

Papers

Nottingham, Kolby, Bodhisattwa Prasad Majumder, Bhavana Dalvi Mishra, Sameer Singh, Peter Clark, Roy Fox. **"Skill Set Optimization: Reinforcing Language Model Behavior via Transferable Skills**." arXiv preprint arXiv:2402.03244 (2024).   **ICML**

Nottingham, Kolby, Yasaman Razeghi, Kyungmin Kim, JB Lanier, Pierre Baldi, Roy Fox, and Sameer Singh. **"Selective Perception: Optimizing State Descriptions with Reinforcement Learning for Language Model Actors**." arXiv preprint arXiv:2307.11922 (2024).   **NAACL**

Nottingham, Kolby, Prithviraj Ammanabrolu, Alane Suhr, Yejin Choi, Sameer Singh, and Roy Fox. **"Do Embodied Agents Dream of Pixelated Sheep?: Embodied Decision Making using Language Guided World Modelling**." Proceedings of the 39th International Conference on Machine Learning (2023).   **ICML**

Kirby, Robert, Kolby Nottingham, Rajarshi Roy, Saad Godil, and Bryan Catanzaro. **"Guiding Global Placement With Reinforcement Learning**." arXiv preprint arXiv:2109.02631 (2021).   **arxiv**

Nottingham, Kolby, Litian Liang, Daeyun Shin, Charless C. Fowlkes, Roy Fox, and Sameer Singh. **"Modular Framework for Visuomotor Language Grounding**." Embodied AI Workshop @ CVPR (2021).   **workshop**

Other Experience

UCI, CS 175 Projects in AI   **Sep 2020 − Jun 2021**
Teaching Assistant

- Mentored 10+ groups on AI related projects in Minecraft Malmo

BYU, CS 474 Deep Learning   **Sep 2019 − Dec 2019**
Teaching Assistant

- Designed RL assignments with custom DQN and PPO implementations

Legrand, Software Center of Excellence   **Nov 2017 − Nov 2018**
Software Engineering Intern

- Worked on small team designing and implementing C# .NET apps

Algorithms/Models

- Policy Gradient
- Q-Learning
- RLHF
- Transformers (GPT/T5/Llama)
- Language Model Finetuning
- In-Context/Few Shot Learning

Technologies

- Python
- C#
- Pytorch
- C++
- Transformers
- Unreal/Unity