



MUKESH GHIMIRE

mukeshghimire.com.np | mghimire@asu.edu

in |  |  | +1-662-202-2139

SUMMARY

Ph.D. candidate integrating game theory, reinforcement learning, and foundation models to enable robust, interpretable autonomous systems. Experienced in large-scale fine-tuning of Language Models.

RELEVANT EXPERIENCE

Mercedes-Benz R&D - San Jose, CA

Machine Learning Intern, 09/2025 - 01/2026

- Built a new VLA model family using Qwen as a backbone, replacing the standard discrete output generation with a continuous action policy.
- Pre-trained the model on nuScenes to predict future ego-trajectories using multimodal inputs (camera feeds and historical state).

Amazon Web Services (AWS) - Santa Clara, CA

Applied Scientist II Intern, 05/2025 - 08/2025

- Designed a novel RL post-training framework for LLMs to enhance math and code reasoning in settings lacking ground-truth solutions [2].
- Improved accuracy on 3 different math benchmark tasks by an average of 34%, all while mitigating model collapse during training.

Arizona State University - Tempe, AZ

Ph.D. Researcher, 06/2021 - today

- Developed a novel algorithm to solve one-sided incomplete-information differential games, emphasizing explainable strategies and safe interactions [1, 3].
- Modeled vehicle interaction as general-sum complete- and incomplete-information differential games to generate safe equilibrial policies for both autonomous vehicles and swarm systems [4].
- Proposed an RL-based controller to reduce the frequency of inference in incomplete-information interactions between a human driver and an autonomous agent, enhancing real-time performance.

SKILLS

AI & ML: Reinforcement Learning (RL), Explainable AI (XAI), Model Predictive Control, Agentic AI, Large (and Vision) Language Models (LLMs), RLHF, RLVR, LLM Post-Training/Fine-Tuning.

Mathematical & Theoretical: Differential Games, Game Theory, Stochastic Processes, Numerical Methods for PDEs

Technical: Python (JAX, NumPy, PyTorch), Linux, Git

EDUCATION

Arizona State University

Tempe, AZ, USA

Ph.D. Robotics & AI

Research Focus: Incomplete Information Differential Games, Reinforcement Learning, Optimization

Advisors: Yi Ren, Zhe Xu

08/2021 - 05/2026 (Anticipated)

University of Mississippi

Oxford, MS, USA

B.Sc. (Hons) Mechanical Engineering

Minors: Computer Science, Mathematics

Thesis: *A Study of Deep Reinforcement Learning in Autonomous Racing Using DeepRacer Car.*

08/2016 - 05/2021

RELEVANT COURSEWORK

Game Theory, Causal Inference, Stochastic Processes, Convex Optimization, Advanced Modern Control, Numerical Methods for PDEs, Reinforcement Learning.

SELECTED PUBLICATIONS

- [1] **M. Ghimire**, L. Zhang, Z. Xu, Y. Ren. *Solving Football by Exploiting Equilibrium Structure of 2p0s Differential Games with One-Sided Information*. Accepted at **ICLR'26**.
- [2] **M. Ghimire**, A. Feng, L. You, Y. Luo, F. Liu, X. Zhu. *PRISM: A Unified Framework for Post-Training LLMs Without Verifiable Rewards*. Under Review.
- [3] **M. Ghimire**, L. Zhang, Z. Xu, Y. Ren. *State-Constrained Zero-Sum Differential Games with One-Sided Information*. **ICML'24**.
- [4] **M. Ghimire**, L. Zhang, W. Zhang, Y. Ren, Z. Xu. *Solving Two-Player General-Sum Games Between Swarms*. **ACC'24**.

Full list on Google Scholar.

SELECTED AWARDS & HONORS

Best Paper Award in MARW Workshop at AAAI 2025

Experiential Learning Grant 2023, 2024

GPSA Travel Grant Award 2023

ICRA Travel Grant 2023

SMBHC Research Fund Award 2020

ACADEMIC ACTIVITIES

TALKS: Sparky's Cup Education - Lightning Talk on Game-Changing AI Applications in Sport.

REVIEWING: AAAI, ICLR, ICML, NeurIPS.