

# AMIT KIRAN REGE

PhD Student in CS  $\diamond$  CU Boulder

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## EDUCATION

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**University of Colorado Boulder** *August 2020 - May 2026 (expected)*  
PhD in Computer Science *Advisor: Claire Monteleoni*  
**University of Colorado Boulder** *August 2018 - 2020*  
Masters in Computer Science *GPA : 4.0/4.0*  
**Birla Institute of Technology and Science (BITS), Pilani - Goa** *August 2014 - Feb 2018*  
BE (Hons.) Computer Science *GPA : 8.28/10*

## RESEARCH INTERESTS

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Theoretical Machine Learning with a focus on Sequential Decision-making and Generative Models:

- Reinforcement Learning Theory
- Theoretical Foundations of Interpretability.
- Machine Learning for Quantum Systems.

## PAPERS AND PREPRINTS

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### **Evaluating the distribution learning capabilities of GANs.**

Amit Kiran Rege, Claire Monteleoni. 2019. <https://arxiv.org/abs/1907.02662>

### **Hamiltonian Learning using Machine Learning Models Trained with Continuous Measurements.**

Kris Tucker, Amit Kiran Rege, Conor Smith, Claire Monteleoni, Tameem Albash. Physical Review Applied, 2024.

### **Theoretical Foundations and Novel Metrics for Comprehensive Evaluation of Multimodal Generative Models.**

Amit Kiran Rege. Multimodal Artificial Intelligence TTIC Workshop 2024.

### **Hamiltonian Learning using Machine Learning Models Trained with Continuous Measurements.**

Amit Kiran Rege, Kris Tucker, Conor Smith, Claire Monteleoni. Machine Learning for Physical Sciences Workshop, NeurIPS, 2024.

### **Influence Estimation in Self-Supervised Learning.**

Amit Kiran Rege\*, Nidhin Harilal\*, Reza Akbarian Bafghi\*, Maziar Raissi, Claire Monteleoni. Self-Supervised Learning - Theory and Practice Workshop, NeurIPS, 2024.

### **The Probe Paradigm: A Theoretical Foundation for Explaining Generative Models.**

Amit Kiran Rege. SafeGenAI Workshop, NeurIPS, 2024.

### **Where Did Your Model Learn That? Label-free Influence for Self-supervised Learning.**

Amit Kiran Rege\*, Nidhin Harilal\*, Reza Akbarian Bafghi, Maziar Raissi, Claire Monteleoni. Preprint (arXiv:2412.17170), 2024.

### **Replicable Learning in Quantum Systems.**

Amit Kiran Rege. Quantum Information Processing (QIP) Poster, 2025.

**Incentivized Lipschitz Bandits.**

Amit Kiran Rege\*, Sourav Chakraborty\*, Claire Monteleoni, Lijun Chen. 64th IEEE Conference on Decision and Control (CDC), 2025.

**Multi-Agent Lipschitz Bandits.**

Amit Kiran Rege\*, Sourav Chakraborty\*, Claire Monteleoni, Lijun Chen. Twenty-Ninth Annual Conference on Artificial Intelligence and Statistics (AISTATS), 2026.

**Flickering Multi-Armed Bandits.**

Amit Kiran Rege\*, Sourav Chakraborty\*, Claire Monteleoni, Lijun Chen. 8th Annual Learning for Dynamics & Control Conference (L4DC) **Oral**, 2026.

**A Unified Framework for Locality in Scalable MARL.**

Amit Kiran Rege\*, Sourav Chakraborty\*, Claire Monteleoni, Lijun Chen. 8th Annual Learning for Dynamics & Control Conference (L4DC), 2026.

**Learning from Local Walks on Dynamic Graphs with Bandit Feedback.**

Amit Kiran Rege\*, Sourav Chakraborty\*, Claire Monteleoni, Lijun Chen. Under Submission, 2026

**Decentralized Learning in Continuous Multi-Agent Bandits.**

Amit Kiran Rege\*, Sourav Chakraborty\*, Claire Monteleoni, Lijun Chen. Under Submission, 2026

**Theoretical Foundations of Data Attribution in Interactive Decision Making.**

Amit Kiran Rege. Under Submission, 2026

**Oracle Separations for Reinforcement Learning with Verified Rewards.**

Amit Kiran Rege. Under Submission, 2026

**Auditability of Local Explanations.**

Amit Kiran Rege. Under Submission, 2026

**Monitorability and Obfuscation in KL-Regularized Agents.**

Amit Kiran Rege. Under Submission, 2026

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**TALKS AND LECTURES**

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**Guest Lectures:**

**Tutorial and Survey on GANs:** CSCI 7000 - Advanced Machine Learning by Prof. Claire Monteleoni (Fall 2021)

**Tutorial and Survey on GANs:** CSCI 5802 - Data Science Companion by Prof. Rafael Frongillo (Spring 2022)

**Practical Aspects of ML:** CSCI 4622 - Machine Learning by Prof. Alvaro Velasquez (Spring 2026)

**Talks:**

**Deep Learning for Crosstalk Detection in Quantum Systems:** NSF Q-SEnSE Annual Meeting (June 29 2022 )

**Theoretical Machine Learning** - "Ross Kaminsky on the news", KOA 94.1 FM iheart radio (Jan 2025)

**LLMs from scratch** - Spencer Fane (Industry Talk) (Nov 2025)

**Frontiers of Generative AI** - Ensemble Innovation Ventures (Industry Talk) (Jan 2026)

**Training Local LLMs** - Spencer Fane (Industry Talk) (March 2026)

## PAST EXPERIENCE

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### **Investment Associate, Deming Center Venture Fund**

*April 2025 - Present*

- Source companies, meet founders and evaluate companies for investment by CU Boulder's Student Venture Fund.
- Led the investment into Great Sky, an AI chip company, executed at the highest valuation in the fund's history (\$50M).

### **Team MARBLE, DARPA Subterranean Challenge**

*May 2019 - August 2019*

Student Engineer - advised by Prof. Christoffer Heckman

- Designed and Implemented the object detection and localization pipeline for robots exploring mines in total darkness
- Placed 4th among 11 teams worldwide for objects localized (teams incl. NASA JPL, CMU, UPenn)

### **Ecole Normale Supérieure**

*Feb 2018 - July 2018*

Research Intern - advised by Prof Cezara Dragoi

- Studied the verification of common state machine replication protocols (Raft, Viewstamp)
- Implemented and formally verified the round based synchronicity of the above asynchronous protocols

### **Chennai Mathematical Institute**

*Aug 2017 - Dec 2017*

Research Intern - advised by Prof. Narayan Kumar

- Conducted a literature survey of the area of Program Analysis studying areas such as Abstract Interpretation, Separation Logic and Concurrency analysis techniques protocols

### **Zero AI**

*May 2016 - July 2016*

Software Engineering Intern

- Built a minimal version of a GPU accelerated matrix library using OpenGL ES 2.0 and used the Qt library for Unit Testing

## TEACHING

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### **INSTRUCTOR:**

**CSCI 1300 - Computer Science 1: Starting Computing** (Summer 2022)

**CSCI 3104 - Algorithms** (Summer 2023)

**CSCI 1300 - Computer Science 1: Starting Computing** (Summer 2024)

### **TA:**

**CS F111 - Introduction to C programming** (Fall 2015)

**CSCI 5922 - Neural Networks and Deep Learning** (Spring 2019)

**CSCI 2270 - Data Structures** (Fall 2019)

**CSCI 2400 - Computer Systems** (Spring 2020)

**CSCI 1300 - Introduction to C++** (Summer 2020)

**CSCI 4622 - Machine Learning** (Fall 2020)

**CSCI 2400 - Computer Systems** (Summer 2021)

**CSCI 1300 - Computer Science 1: Starting Computing** (Fall 2025)

**CSCI 4622 - Machine Learning** (Spring 2026)

## **OTHER RESPONSIBILITIES**

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**Reviewing** : ICLR 2019 (Emergency Reviewing), ICLR 2020, Neurips 2021, ICLR 2022, ICML 2022, Neurips 2022, ICLR 2023, Neurips 2023, ICLR 2024, ICML 2024, NeurIPS 2024, AAAI 2025, ICLR 2025

Student Representative on the Graduate Committee for the CS department for the 20-21 academic year

Student Representative on Council for Q-SEnSe (NSF QLCI)

Student Volunteer COLT '21

Student Co-ordinator for CLIMB group 20-21, 21-22 academic years.

Founder and Organizer of ML Tea in the CS department

## **OTHER ACADEMIC ACHIEVEMENTS**

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Engineering Entrance rank of 2432 out of approximately 1.3 million students

Top 1% in state level high school exams

Finalist Interdisciplinary Ethics Tech Competition 2025