

# Nidhin Harilal

FIFTH-YEAR PhD STUDENT  
COMPUTER SCIENCE, CU BOULDER

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**Interests:** AI/ML Robustness, GenAI, Multimodality, & Representation Learning.

## Education

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University of Colorado, Boulder	GPA - 4.0/4.0
Ph.D & MS in CS advised by <a href="#">Dr. Claire Monteleoni</a>	Aug. 2021 - May 2026 (Expected)
Indian Institute of Technology (IIT) Gandhinagar	GPA - 8.51/10
B.Tech. (with Honours) in CSE   🏅 Dean's List	July 2017 - July 2021

## Experiences

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Amazon Science	Sept. 2025 - Dec. 2025
Applied Scientist Intern (Team: Creators Science)	Managers: <a href="#">Prince Grover</a> , <a href="#">Dr. Tessa Childers-Day</a>
Samsung Semiconductor	June. 2025 - Aug. 2025
ML PhD Intern (Team: US R&D SDAL)	Managers: <a href="#">Dr. Zhihong Pan</a> , <a href="#">Dr. Kaushik Balakrishnan</a>
INRIA, Paris	May. 2024 - Aug. 2024
Research Intern (Team: ARCHES)	Advisors: <a href="#">Dr. Anastase</a> , <a href="#">Prof. Claire Monteleoni</a>
University of Colorado, Boulder	Jan. 2022 - Present
Research Assistant (Currently funded by NSF iHARP)	Advisor: <a href="#">Prof. Claire Monteleoni</a>
Northeastern University	Jul. 2020 - Dec. 2020
Research Intern (SDS Lab)	Advisor: <a href="#">Prof. Auroop R. Ganguly</a>
Indian Institute of Technology, Gandhinagar	May. 2019 - Dec. 2019
Undergraduate Research Assistant (MIR Lab, Vision & Graphics Lab)	Advisors: <a href="#">Prof. Bhatia</a> , <a href="#">Prof. Raman</a>
Capgemini Technology Services, Ahmedabad	GJ, India
ML Engineer Intern (Team ML Safety)	Apr. 2019 - Jun. 2019

## Invited Presentations

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Aug. 2024	Google DeepMind, Paris, 'Spatiotemporal Representations: Translating Advances in Vision to Geospatial Datasets'
Feb. 2023	AAAI: AI for Climate Science, 'Semi-supervised spatiotemporal downscaling of climate projections'
July 2022	Eastern European ML Summer School, 'Generating High-resolution Climate Change Projections'

## Research Papers

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\* indicates equal contribution

### PEER-REVIEWED

**MixDiff: Mixing Natural and Synthetic Images for Robust Self-Supervised Representations** ([PDF](#), [Web](#))  
Reza Akbarian\*, Nidhin Harilal\*, Claire Monteleoni and Maziar Raissi.  
Accepted at *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)* 2025.

**Influence Estimation for Self-Supervised Learning** ([PDF](#))  
Reza Akbarian\*, Nidhin Harilal\*, Amit Rege\*, and Claire Monteleoni.  
In *NeurIPS 2024 - Self-supervised Learning: Theory and Practice*

**Parameter Efficient Fine-tuning of Self-supervised ViTs without Catastrophic Forgetting** ([PDF](#))  
Reza Akbarian\*, Nidhin Harilal\*, Claire Monteleoni, and Maziar Raissi.  
In *In CVPR 2024 - Efficient Large Vision Models (eLVM)*

## EnhancedSD: Downscaling Solar Irradiance from Climate Model Projections. ([PDF ↗](#))

Nidhin Harilal, B. M Hodge, Claire Monteleoni, and Aneesh Subramanian.

In *NeurIPS 2022 - Tackling Climate Change with Machine Learning (Climate Change AI)*

## Image Caption Generator using Siamese Graph Convolutional Networks and LSTM. ([PDF ↗](#))

Athul Kumar, Aarchi Agrawal, KS Ashin Shanly, Sudip Das, and Nidhin Harilal

In *5th Joint International Conference on Data Science & Management of Data* (9th ACM IKDD CODS and 27th COMAD) 2022

## HDRVideo-GAN: Deep Generative HDR Video Reconstruction. ([PDF ↗](#))

Mrinal Anand\*, Nidhin Harilal\*, Chandan Kumar\*, and Shanmuganathan Raman

In *Proceedings of 12th Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP) 2021*

## Augmented ConvLSTMs for Generating High-Resolution Climate Change Projections. ([PDF ↗](#))

Nidhin Harilal, Mayank Singh, Udit Bhatia

In *IEEE Access, Volume 9*. 2021

## CARO: An Empathetic Chatbot for People with Major Depression. ([PDF ↗](#))

Nidhin Harilal, Rushil Shah, Saumitra Sharma, and Vedanta Bhutani

In *ACM 7th IKDD CoDS and 25th COMAD 2020*

## PREPRINTS/MANUSCRIPTS

### Where Did Your Model Learn That? Label-free Influence for Self-supervised Learning ([PDF ↗](#))

Nidhin Harilal\*, Amit Kiran Rege\*, Reza Akbarian, Maziar Raissi and Claire Monteleoni.

In submission.

### STint: Self-supervised Temporal Interpolation for Geospatial Data ([PDF ↗](#))

Nidhin Harilal, B. M Hodge, Aneesh Subramanian and Claire Monteleoni.

In submission.

## Awards and Honors

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Nov. 2024 Bell Foundation Research Fellowship, at CU Boulder.

Jul. 2024 iHARP Polar Informatics Fellowship, at CU Boulder.

Feb. 2022 Early Career Professional Development Fellowship, at CU Boulder.

Nov 2021 Awtar and Teji Singh Graduate Fellowship, at CU Boulder.

Nov. 2020 Journal Publication Award, at IIT Gandhinagar.

2018-19 Dean's List for excellent academic performance, at IIT Gandhinagar.

Aug. 2014 National Winner for CBSE All India Science Exhibition, at New Delhi.

## Teaching & Services

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Reviewer for prominent ML conferences such as WACV (2021, 2022, 2023), NeurIPS (2023, 2024), ICLR (2024, 2025).

Teaching Assistant, CSCI 5622: Machine learning (Spring 2024) and CSCI 4622: Machine learning (Fall 2022) at CU Boulder.

Teaching Assistant, ES 654: ML (Spring 2021) and ES 102: Intro to computing (Fall 2020) at IIT Gandhinagar.

Mentor for Academic Discussion Hours (Fall 2019-20) at IIT Gandhinagar, assisting freshmen with academic workload challenges.

Organizer of *HackRush*, IIT Gandhinagar's annual intra-college hackathon (2018, '19, '20, '21).

## Relevant Skills

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Programming [Extensive] Python, Machine Learning (PyTorch & Tensorflow)

Workflow High-Performance Computing (Slurm), Cloud Platforms (AWS, GCP), Containerization (Docker)

Design LATEX, Vector graphics (InkScape), Adobe Suite (Lightroom, Photoshop)