

Nidhin Harilal

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EDUCATION

University of Colorado Boulder

Ph.D. in Computer Science

August 2021 - Present

GPA: 4.0/4.0

Indian Institute of Technology Gandhinagar

B.Tech. (with Honours) in Computer Science & Engineering

August 2017 - April 2021

GPA: 8.51/10

PUBLICATIONS AND PRE-PRINTS

Bayesian Deep Learning Hyperparameter Search for Robust Function Mapping to Polynomials with Noise

Nidhin Harilal, Udit Bhatia, Auroop Ganguly

Manuscript in preparation [[Arxiv pre-print](#)]

HDRVideo-GAN: Deep Generative HDR Video Reconstruction

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

(Oral) Indian Conference on Computer Vision, Graphics & Image Processing (ICVGIP'21) [[PDF](#)]

Augmented Convolutional LSTMs for Generating High-Resolution Climate Projections

Nidhin Harilal, Mayank Singh, Udit Bhatia

IEEE Access, Volume 9 (2021) [[PDF](#)]

CARO: An Empathetic Chatbot for People with Major Depression

Nidhin Harilal, Rushil Shah, Saumitra Sharma, Vedanta Bhutani

(Oral) Young Researchers' Symposium, ACM Joint International Conference on Data Science and Management of Data, (CoDS-COMAD) 2020 [[PDF](#)]

* indicates equal contribution

TECHNICAL EXPERIENCES

Research Assistant, University of Colorado Boulder

Dec 2021 - Present

- Developing self-supervised methods for learning meaningful spatio-temporal representations.
- Studying efficacy of unsupervised methods on high-dimensional data with complex correlations.

Research Intern, Northeastern University

July 2020 - Dec 2020

- Analysed performance vs complexity trade-offs of Monte-Carlo (MC) dropout Bayesian neural networks on varying depth, width and ensembles with a focus on noisy polynomials with varying degrees.
- Devised a loss-landscapes based approach for utilizing multiple configurations at once to study optimality in terms of model in extracting signals from different noisy samples. [[Pre-print](#)]

Research Assistant, Vision Lab - IIT Gandhinagar

July 2020 - Dec 2020

- Developed a Generative Adversarial Network (GAN) based framework for reconstructing High Dynamic Range (HDR) videos from Low Dynamic Range (LDR) frames with alternating exposures.
- Framework consisted of a self-supervised sub-network for noise correction and an optical-flow module to optically align consecutive sequence and produce temporally consistent video frames.

Summer Research Intern, MIR Lab - IIT Gandhinagar

May - July 2019

- Critiqued & found several problems including Concept Drift with current machine learning approaches in statistical downscaling. Utilized additional set of covariates along with ESM outputs and proposed a Conv-LSTM based recurrent structure considering both spatial & temporal domains for downscaling.

- Designed a Face Recognition system with the constraint of ‘one sample per person’.
- Developed a flask web-app with integration to FaceNet model with features including live face update for unrecognized faces and real-time cloud updates on Firebase.

TEACHING EXPERIENCES

University of Colorado Boulder 2021 - 22

Teaching Assistant, Department of Computer Science

- CSCI 4460: Machine Learning, Fall 2021

Indian Institute of Technology Gandhinagar 2020 - 21

Teaching Assistant, Department of Computer Science & Engineering

- ES 654: Machine Learning, Spring 2020
- ES 102: Introduction to Computing, Fall 2020

PROFESSIONAL ACTIVITIES

- Tutorial on MC-dropout based Neural Networks at Northeastern University December 2020
- Reviewer, Winter Conference on Applications of Computer Vision (WACV'21). October 2020
- Co-established & organised *HackRush* - IITGN's annual technical hackathon 2018, '19, '20, '21

HONORS AND AWARDS

- Recipient of Awtar and Teji Singh Graduate Fellowship 2021 (\$20,000) October 2021
- Undergraduate Research award for Journal Publication (\$350) by IIT GN. May 2021
- Awarded Travel Grant to attend CoDS-COMAD'20, Hyderabad (India) January 2020
- Secured a position in Dean's List for excellent academic performance. 2018, '19
- Ranked in top 0.01 percentile in JEE Advanced examination 2017. June 2017
- Ranked in top 0.003 percentile in JEE Mains examination 2017. April 2017
- National Winner of CBSE All India Annual Science Exhibition, New Delhi. December 2014

SKILLS

Programming	Python, OpenCV, C/C++, HTML/CSS
ML Frameworks	PyTorch, Tensorflow, Keras
Developer Tools	Git, L ^A T _E X, Docker, Google Cloud Platform, Flask