# Eashan Adhikarla

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## OBJECTIVE

To acquire a challenging summer internship position utilizing my skills in Machine Learning, Data Science, and Information Retrieval.

## EDUCATION

Lehigh University — **Bethlehem, PA**
**Ph.D.** in Computer Science (Machine Learning) — Aug 2020 - Present

Lehigh University, GPA - 3.6/4.0 — **Bethlehem, PA**
**M.S.** in Computer Science — Aug 2018 - May 2020

Rajiv Gandhi Proudyogiki Vishwavidyalaya (RGPV), GPA - 3.7/4.0 — **Bhopal, MP**
**B.E.** in Computer Science — Aug 2013 - May 2017

## EXPERIENCE

**Lehigh University** — **Bethlehem, PA**
*Peer Mentor*, (Supervisor: Dr. Brian D. Davison) — May 2020 - Aug 2020
- Mentoring and closely guiding 15 NSF-REU Interns on-site project.
- Funded by NSF — CNS-1757787

**Resilience Research Group for SARS-CoV-2** — **Bethlehem, PA**
*Research Assistant*, (Supervisor: Dr. Brian D. Davison) — May 2020 - Aug 2020
- Image Gathering for face masks in the United States and designing a novel face-mask detection algorithm for a data science survey research on SARS-CoV-2.
- Funded by Lehigh Research Grants.

**Lawrence Berkeley National Laboratory (LBNL)** — **Berkeley, CA**
*Research Intern (NERSC)*, (Supervisor: Dr. Brian Austin) — May 2019 - Aug 2019
- Developed scripts to fetch and analyze petabytes of data from the SLURM scheduler.
- Analyzed & estimated real-time queues in the scheduler for optimizing the policies for incoming jobs.
- Developed three real-time policies that potentially improved the allocation procedure.

**Persistent Systems** — **Pune, MH**
*Machine learning Intern*, (Supervisor: Dr. Bhushan Garware) — May 2019 - Aug 2019
- Developed a facial recognition and verification system using Google's FaceNET research as the baseline which can directly learn from the 128x128 low dimensional representation.
- Added additional OpenCV features on top of it, which can differentiate between 3-D and 2-D images (a drawback of Google's FaceNET)
- Designed a purely browser-based RSA compliant module to work with FIDO keys.

## RESEARCH PROJECTS

**Auto-encoder with Memory Defense for White-box Adversarial Attacks** Aug 2020

- Designed a robust auto-encoder for detecting adversarial images to mitigate adversarial attacks in a machine learning model.
- Designed a close proximity approximation estimator which can distinguish between distinct and distance manifold from different classes.

**Sequence Generative Adversarial Nets with Policy Gradient** Jan 2020

- Seq-GAN is a unique approach which models the data generator as a stochastic policy in reinforcement learning to solve the problem with improvements in pre-processing.
- The RL reward signal comes from the GAN discriminator judged on a complete sequence, and is passed back to the intermediate state-action steps using Monte Carlo search.

**Facial Recognition and Verification System** Jan 2017

- Working with the accuracies and flaw removal strategies with re-implementation of Open-Face, for improving the range of applications in the domain of Security.
- Resolved the false positive 2-D inputs by introducing more features in Stage 1 (face detection) as a.) Orientation Normalization b.) 3D surface representation.

## PUBLICATIONS

- Autoencoder with Memory Defense against White-box Adversarial Attacks*, *Manuscript in preparation*
- Estimating an HPC Facility's Capacity For Accommodating Real-time Workflows, Thesis, *National Energy Research Scientific Computing (NERSC), 2019*

## PEER REVIEW

- IEEE Big Data Conference Fall 2020

## SKILLS

Programming Languages - C++, Python, Bash, Scala
Web Backend Technologies - MySql, MongoDB, NoSQL, HTML5.
Web Frontend Technologies - Pytorch, Tensorflow, OpenCV, dlib, Boost-C++, Cmake, scikit-learn, Apache Spark, git, Latex

## TEACHING ASSISTANT

- CSE 017 - Programming and Data Structures Fall 2020
- CSE 017 - Programming and Data Structures Fall 2019
- CSE 160 - Introduction to Data Science Spring 2019
- CSE 001 - Breadth of Computing Fall 2018