

# NIRAV PATEL

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## EDUCATION

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### North Carolina State University

Jan. 2021 - May. 2022

#### MASTERS IN COMPUTER SCIENCE

4.0/4.0

- **Coursework:** Automated Learning and Data Analysis, Neural Networks and Deep Learning, Database Management System, Graph Data Mining, Software Engineering, Design and Analysis of Algorithms

### Dhirubhai Ambani Institute of Information and Communication Technology

Aug. 2014 - May. 2018

#### B.TECH IN INFORMATION AND COMMUNICATION TECHNOLOGY

7.59/10

- **Coursework:** Neural Networks, Computer vision, Information retrieval, Computational data science and analytic, Data mining and warehousing, Internet of things

## TECHNICAL SKILLS

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**Languages** C, Java, Python, SQL, Cypher

**Tools and Technologies** AWS, Neo4j, Docker, Tableau, Robot framework, Spirent, SpringBoot, Git

**Libraries** Keras, Pandas, Numpy, Tensorflow,sklearn, openCV, seaborn

## PROFESSIONAL EXPERIENCE

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### North Carolina Institute for Climate Studies

May 2021 - August 2021

#### SOFTWARE ENGINEERING INTERN

Raleigh, North Carolina

- Designed graph schema for the GHCN-D climate dataset and automated building Neo4j graph database in aws. Benchmarked performance, scaling and cost of maintaining the database.
- Designed Schema for GHCN-D dataset for AWS DynamoDB. Created AWS cloudformation stack consisting s3, lambda and sqs to build database in dynamoDB directly from csv file. Compared the benchmarking results of DynamoDB to Neo4j.
- Created GraphQL API using Grandstack and HTTP API to access Neo4j database.
- Performed exploratory data analysis of the database in python and different visualization in tableau.

### Juniper Networks

July 2018 - December 2020

#### SOFTWARE ENGINEER 2

Bengaluru, India

- Worked on enhancing multicast snooping functionality over multiple platforms - routers and switches running JUNOS operating system. Worked closely with Juniper customers to resolve various issues concerned with memory management, scheduling, threading, snooping behaviour in network running different protocols such as EVPN, H-VPLS,EVPN, pim, igmp, mld,bgp.
- Worked on makefile for migrating multicast snooping process from JUNOS(BSD based Juniper OS) to EVO(Linux based Juniper OS). Resolved various cyclic dependencies and undefined symbols as the code span over million lines of code.
- Developed a feature to read traffic statistics from PFE and showing traffic summary in UI at RE level.

### Juniper Networks

January 2018 - June 2018

#### SOFTWARE ENGINEERING INTERN

Bengaluru, India

- Developed robust test scripts verifying BUM traffic for multicast snooping daemon running evpn on QFX series platform using Spirent and robot framework
- Built different network topologies and automated testing of multicast snooping in different types of routing instance running protocols such as ospf, bgp, igmp, pim, p2mp, vpls.

### Dhirubhai Ambani Institute of Information and Communication Technology

May 2017 - August 2017

#### RESEARCH INTERN

Gandhinagar, India

- Managed to get 93% accuracy to mark the attendance using an image of a classroom. Used Haarcascade classifier and adaboost to detect the faces and CNN to recognize the face.

## ACADEMIC PROJECTS

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### Google Landmark Recognition

- Built a deep learning model to recognize a landmark given an image. Used pretrained resnet101 as a backbone architecture and used transfer learning to train fully connected neural network. Compared results of this model with different loss functions such as cross entropy loss, arcface and triplet loss.

### Big Box Retailer Database Service

- Designed and implemented a database service for a Costco like store using MariaDB and Spring Boot. Performed partitioning, indexing, and query optimizations to improve performance.

### Summarization of tweets

- Developed a model to give a summary of people's view on twitter given a hashtag. Created the dataset by randmoly selecting trending hashtags using twitter APIs. Used text mining methods to clean the dataset. Implemented modified tf-idf algorithm and K means to get the summary.

### Human Activity Recognition

- Given a time series data of accelerometer and gyroscope values, implemented different models to predict correct activity label. Compared results of classical models such as SVM, XGBoost, bagging classifier, LSTM, Bidirectional LSTM and CNN-LSTM after extracting handmade features. Achieved a F1-score of 92% on a highly imbalance test set.

### Protein sequence prediction

- Used Machine Learning algorithms to predict the type of protein. Implemented and compared different neural network classification methods MLP, RBF, MRAN in MATLAB