

ISHAN BHATT

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EDUCATION

Department of Computer Science, North Carolina State University

Master of Computer Science

Grade Point Average (current): 4.33 on a 4-point scale

January 2021 – December 2022

Raleigh, North Carolina, United States

Birla Vishvakarma Mahavidyalaya, Gujarat Technological University

Bachelor of Technology (Computer Engineering)

Cumulative Performance Index: 9.29 on a 10-point scale; GATE (Computer Science): All India Rank – 1357 out of 99932 candidates

August 2015 – June 2019

Vallabh Vidyanagar, Gujarat, India

EXPERIENCE

PICTure Research Group, North Carolina State University

Graduate Research Assistant

June 2021 – Present

Raleigh, North Carolina, United States

- Using ML to test causal hypotheses around Tropical Cyclogenesis with the goal of achieving reliable Pre-season Hurricane Prediction

Tata Consultancy Services Limited - Research & Innovation (Manufacturing)

Project Intern & (later) Systems Engineer - AI/ML

January 2019 – July 2020

Mumbai, Maharashtra, India

- Built ML-powered Fault Detection Systems for Car Seats, Jet Engines (Vibration Detection using sound), Metal Welds (Visual Weld Strength Analysis), PCBs (Detect missing components from images), etc.; Integrated these with TCS's Visual Cognitive Quality Assurance suite
- ✓ Was usually responsible for proposing a new idea and deploying a PoC/Pilot application; Completed over ten projects in a year

TECHNICAL SKILLS

Programming: Python 3, C++/C, JavaScript, Java*

Machine Learning: NumPy, pandas, scikit-learn, OpenCV, NLTK

Deep Learning: TensorFlow(1.x) + Keras, PyTorch*

Visualization: matplotlib, tableau, d3.js, Seaborn

Web front-end: HTML 5, CSS 3, Bootstrap, JavaScript, React*

Web back-end: Python Flask, node.js, PHP, SQL

Internet of Things: Arduino, Raspberry Pi

Cloud/DevOps*: git, AWS, GCP, Docker

* indicates working-knowledge

PROJECTS

Terrain Recognition | Deep Learning - Time Series Analysis

- Built an Ensemble of 1D-Autoencoders and Bi-LSTMs to perform Sequence-to-Sequence Classification for continuous terrain prediction using data stream from sensors (accelerometers and gyroscopes) attached to a person's prosthetic lower limb
- ✓ Achieved 93.5% weighted-mean F1-Score on the private leader-board; Stood 1st (among ≈ 120 participants) in the competition

Intelligent Character Recognition | Design Engineering

- Built a software solution to capture data from images of specially-designed hand-filled forms and store it into a database of user's choice
- ✓ Using SIFT, managed to detect all the text blocks from well-lit images; Achieved classification accuracy of $\approx 80\%$ using a CNN classifier

Website for College NCC Unit | Web Development

- Proposed, developed and maintained a website for the National Cadet Corps unit hosted on college campus from 2018 to 2020
- ✓ Was awarded NCC Certificate of Excellence for this work; Currently, NIC-India hosts a modified version

Single Person 2D Pose Estimation | Deep Learning - Computer Vision

- Built an HPE system taking inspiration from CPMs and SHMs; Achieved $\approx 82\%$ PCKh@0.5 which is 10% less than State-of-the-Art

Maze Exploration and Navigation | Reinforcement Learning; IoT

- Trained an RL agent using Deep-Q-learning and Policy Gradient methods to navigate through an uncharted region on-the-fly
- Built a Raspberry Pi powered pilot-vehicle with LiDAR (for location tracking & obstacle detection) that could navigate in sparse mazes

LEADERSHIP / EXTRACURRICULAR

Students' Core Committee (SCC), BVM Engineering College

Member & Computer Engineering Branch Co-head

- SCC organizes BVM's annual techno-cultural festival UDAAN; 3000+ participants from across the state are hosted on the BVM campus
- ✓ Was directly responsible for conducting 4 events totaling ≈ 600 participants; Received Spirit of Udaan award for exceptional contribution

National Cadet Corps (NCC), 2 Composite Technical Company (NCC)

Cadet & (later) Under Officer

- ✓ Was directly responsible for ensuring proper training of about 60 cadets; Proposed, developed and maintained a website for the unit
- ✓ Received NCC Certificate of Excellence; Received NCC Officers' Training Academy (Kamptee) Certificate of Merit, etc.

Writing

- ✓ Writer for Analytics Vidhya's Online Publication; 100+ hours of total read time on my Medium blogs related to Machine Learning
- ✓ Active Writer on Quora since 2015; 67K+ lifetime views on my answers to questions related to various topics in Computer Science
- ✓ Contributed to most major campus periodicals at BVM; 4 of my non-technical articles were featured in various campus publications