Ishan Bhatt

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EDUCATION

Department of Computer Science, North Carolina State University — **January 2021 – December 2022**
Master of Science (Computer Science) — *Raleigh, North Carolina, United States*
> **Grade Point Average (current): 4.33** on a 4-point scale

Birla Vishvakarma Mahavidyalaya, Gujarat Technological University — **August 2015 – June 2019**
Bachelor of Technology (Computer Engineering) — *Vallabh Vidyanagar, Gujarat, India*
> **Cumulative Performance Index: 9.29** on a 10-point scale
> **GATE (Computer Science): All India Rank – 1357** out of 99932 candidates

EXPERIENCE

PICTure Research Group, North Carolina State University — **June 2021 – December 2022**
Graduate Research Assistant — *Raleigh, North Carolina, United States*
- **Using ML** and hypotheses around Tropical Cyclogenesis **to achieve reliable Pre-season Hurricane Prediction**
- **Building a web platform for visualizing** data and ML model performance related to **Net-load forecasting of Solar Power**

Tata Consultancy Services Limited - Research & Innovation (Manufacturing) — **January 2019 – August 2020**
Project Intern & (later) Systems Engineer - AI/ML — *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 assignments in a year**

TECHNICAL SKILLS
* indicates working-knowledge

Programming: Python 3, C++/C, JavaScript, Java*
Machine Learning: NumPy, pandas, scikit-learn, OpenCV, NLTK
Deep Learning: TensorFlow(1.x) + Keras, PyTorch*
Visualization: matplotlib, Seaborn, D3JS, tableau, dash.plotly

Web front-end: HTML 5, CSS 3, Bootstrap, JavaScript, ReactJS*
Web back-end: Python Flask, NodeJS, PHP, SQL
Internet of Things: Arduino, Raspberry Pi
Cloud/DevOps*: git, AWS, GCP, Docker

PROJECTS

Terrain Recognition | *Deep Learning - Time Series Analysis*
- Built an Ensemble of 1D-Auto-encoders 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 $\approx$ 120 participants) in the competition

Intelligent Character Recognition (ICR) | *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

LAMP-stack website | *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

Human Pose Estimation (HPE) | *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; 5000+ participants from across the state are hosted on the BVM campus
- ✓ **Was directly responsible for conducting 4 events with $\approx$ 1000 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 $\approx$ **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; $\approx$**75K 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