Nirav Bhavsar

bhavsarniravn@gmail.com | niravnb | niravnb | InterviewBit

Education

Indian Institute of Technology Madras *2017 - 2020*

M.S. (by Research) in Computer Science and Engineering; **CGPA: 9.40**

- **Key courses:** Advanced Data Structures and Algorithms, Advanced Programming Lab, Pattern Recognition and Machine Learning, Reinforcement Learning, Multi-armed bandits, Linear Algebra and Random Processes, Deep Learning (audited).

Gujarat Technological University *2010 - 2014*

B.E. in Electronics and Communication; **CGPA : 8.73**

Work Experience

Samsung R&D Bangalore - Senior Engineer *Joining deferred to Jan 2021*

IBM Research - Research Intern *May 2019 - July 2019*

- Worked on a Collaborative Cognition (CC) platform and developed the **first** end-to-end working Collab AI agent.
- Implemented various skills, behaviors, and statistical models for the Collab AI agent, and a communicator module for the CC platform.
- Performed a **comparative analysis** of different machine learning, deep learning, and time series forecasting models.

Indian Institute of Technology Madras - Teaching Assistant & Project Associate (from Jan 2020) *July 2017 - July 2020*

- Assisted in designing and evaluating programming assignments, tutorials, and exams for various **AI/ML courses** (70+ students every semester).
- Worked on a simulation-based optimization in a risk-sensitive reinforcement learning framework project and published the work done on arxiv.

Infosys - Senior Systems Engineer *Oct 2014 - July 2017*

- Worked on developing automation test scripts for mobile devices; enhanced automation framework which **reduced** execution time by **20%**.
- Received **Insta Award** for developing a tool which drastically cuts down the manual testing effort of updating passed test cases in HP ALM.
- Completed Infosys Foundation Program Training in Microsoft Stream with an aggregate of **89%** and also amongst the **top 5%** performers.

Key Projects

Large-Scale Movie Recommendation using Cascading Bandits - Multi-armed Bandits

- Implemented two online learning algorithms, namely **CascadeLinTS** and **CascadeLinUCB**, which models and adapts to users' behavior/interest.
- Performed **collaborative filtering** to extract movie features, then empirically evaluate both algorithm's performance with several baselines, under various settings on the MovieLens dataset containing **10M** movie ratings.

Table Summarizer - Natural language processing

- Implemented an **encoder-decoder LSTM model** on the WeatherGov dataset to generate a summary from a table of weather records.
- Improved BLEU score by incorporating pre-trained GloVe embeddings, attention mechanism, and beam search decoding.

Commodity Price Prediction - Time series forecasting

- Performed a comparative study of different time series models and delivered a theoretical study on the reasons for failure of several models.
- Employed sliding window technique along with providing prior information like seasonality, exogenous variables, etc. on various **machine learning**, **deep learning**, and **ensemble learning** models to improve prediction accuracy by **15%**.

Anti Spoofing in Face Recognition - Computer vision

- Implemented an eye-blink detection based real-time **liveness detection** algorithm for face recognition. (Project video)

Learning in Stochastic GridWorld - Reinforcement Learning

- Designed a stochastic gridworld environment and trained an **AI agent** to learn optimal policies using various RL algorithms. (Project video)

Skills and Tools

Languages Python, C++, C, MATLAB, SQL, Javascript

Softwares Microsoft Visual Studio, Microsoft SQL Server, GitHub, LaTeX, HP UFT, HP ALM

Libraries Scikit-learn, TensorFlow, Keras, OpenCV, NLTK, SciPy, Pandas, Statsmodels, PyFlux, Spade, OpenAI Gym, D3.js

Publications

- **Nirav Bhavsar** and Prashanth L. A., **Non-Asymptotic Bounds for Zeroth-Order Stochastic Optimization**, submitted to *Neural Information Processing Systems (NeurIPS)*, and preprint is available on arXiv:2002.11440, 2020.
- Prashanth L. A., Shalab Bhatnagar, **Nirav Bhavsar**, Michael Fu and Steve Marcus, **Random directions stochastic approximation with deterministic perturbations**, *IEEE Transactions on Automatic Control (IEEE TAC)*, vol. 65, no. 6, pp. 2450-2465, doi:10.1109/TAC.2019.2930821, 2020.

Achievements and Co-curricular Activities

- Secured All India Rank **334 (99.69 percentile)** in GATE 2018 and **660 (99.31 percentile)** in GATE 2017 – Computer Science.
- Among the **top 5** teams (out of 100+ teams) to qualify for the final round in JARVIS (Machine Learning competition) at Shaastra 2018, IIT Madras.