Pritesh Kumar Verma

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Education

- **ITM University** — Gwalior, India
  Bachelor of Technology - Computer Science and Engineering; GPA: 8.04 — *July 2016 - June 2020*
  Courses: *Operating Systems, Data Structures, Analysis Of Algorithms, Artificial Intelligence, Machine Learning, Networking, Databases*
- **Sri Chaitanya Jr. College** — Vijayawada, India
  Intermediate; Percentage: 84.7 — *2013 - 2015*
  Courses: *Mathematics, Physics, Chemistry, English, Sanskrit*

Skills Summary

- **Languages**: Python, C/C++, JavaScript, SQL, JAVA
- **Frameworks and Libraries**: Scikit, Pandas, Numpy, Pytorch, OpenMP, Lapacke, HPC, Django, Flask
- **Tools**: GIT, MySQL, SQLite
- **Platforms**: Linux, Web, Windows, Raspberry, AWS

Experience

- **Robert Bosch Centre for Data Science and AI, IIT Madras** — Onsite
  Post Baccalaureate Fellow (Full-time) — *Aug 2022 - Present*
  - **Project**: Independent research on interdisciplinary topics: Queue Length detection on road segment using LiDAR, Physics informed deep learning
- **IIT Dharwad** — Onsite
  Research Fellow (Full-time) — *Jun 2021 - Aug 2022*
  - **Project**: Fast Eigensolvers for Large-Scale Hierarchical Matrices -From Design to Deployment, DST-NSM
- **Raintree system inc** — Remote
  Research Fellow (Full-time) — *Mar 2021 - May 2021*
  - **Project**: Created and designed interactive forms of different categories for the different Hospitals and insurance agencies, both for Raintree's web-client and software. Debugged and fixed the issues of different clients using RSL(Raintree Scripting) and MySQl.
- **CSIR - Central Drug Research Institute** — Remote
  Intern — *May 2019 - June 2019*
  - **Work**: Performed Exploratory Data analysis using Pythons libraries and Created database to query data efficiently in SQL

Projects

- **Bus travel time estimation using physics informed deep learning**: (Work in progress) Goal of the project is to develop a model that could accurately predict the travel time of a bus on a particular route, taking into account various factors such as traffic conditions, weather, and the physical properties of the road.
- **Eiger**: Designed and Implemented parallel algorithms for computing eigenvalues and eigenvectors for large hss matrices. Computation of eigenvalues and vectors of large matrices could take large computation time in $O(n^3)$. Whereas SuperDC takes only $O(r^2n(log^2)n)$.
- **Fast algorithms for hierarchically semiseparable matrices**: Designed and Implemented a Parallel algorithm for storing some rank structured matrices to reduce its size by storing the matrix along a full binary tree. For an $O(n^2)$ size matrix this algorithm only takes $O(n \log n)$ storage which is a huge improvement in terms of storage.
- **Reinforcement learning algorithm to solve the Frozen Lake environment using Q-learning**: Implemented the Q-learning algorithm in Python and trained the agent to navigate the Frozen Lake environment using trial and error. I also experimented with different parameters such as the learning rate and discount factor to observe their effects on the agent's performance.

Honors and Awards

- Hack for Sport (Hackerearth)(Finalists) Top 13 among 4000 teams - June 2022
- Qualified GATE examination twice with more the 90 percentile - 2020 and 2021
- NCC (National cadet corps),NCC aims at developing character, comradeship, discipline, a secular outlook, and spirit. I have organised and been part of numerous social drives for the betterment of society.
- Best captain for team management in group project
- Silver medal in 800 m (Annual Sports meet)
- Silver medal in Photography (Annual Day)