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, Deep Learning, Linear Algebra, 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

- **IIT Kharagpur** — Onsite
  Research Fellow (Dept. of Computer Science and Engineering) — *May 2022 - Present*
  - : Advanced 3D computer vision techniques enable precise point cloud registration for temporally separated point cloud data of agricultural plants, revolutionizing plant phenotyping.
- **Robert Bosch Centre for Data Science and AI, IIT Madras** — Onsite
  Post Baccalaureate Fellow (Dept. of Computer Science and Engineering) — *Aug 2022 - Feb 2023*
  - : Independent research on interdisciplinary topics: Physics informed deep learning. Conducted in-depth research on the applications of physics informed deep learning in various domains, including fluid dynamics and traffic. Developed and implemented models using Python and Pytorch.
- **IIT Dharwad** — Onsite
  Research Fellow (Dept. of Computer Science and Engineering) — *Jun 2021 - Aug 2022*
  - : Designed and executed a hierarchical matrix-based algorithm and implemented it in C++ using MPI and OpenMP; achieved a 60% speedup and 35% reduction in memory usage compared to the baseline algorithm.
- **Raintree system inc** — Remote
  Software Engineer (Full-time) — *Mar 2021 - May 2021*
  - : Created and designed interactive forms for various categories such as hospitals and insurance agencies. These forms were developed for both Raintree's web-client and software. Additionally, I was responsible for debugging and fixing issues for different clients using RSL (Raintree Scripting) and MySQL.
- **CSIR - Central Drug Research Institute** — Remote
  Intern — *May 2019 - June 2019*
  - : Performed Exploratory Data Analysis using Python's libraries and created a database to query data efficiently in SQL.

Projects

- **Point2Registration**: Developing an innovative point cloud skeletonization algorithm for efficient extraction of plant structures in deformable agricultural environments, enabling accurate plant analysis and monitoring in smart farming and remote sensing applications by using both algorithmic and deep techniques(Ongoing)
- **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 $O(r^2n(log^2n))$.
- **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.
- **Bus travel time estimation using physics informed deep learning**: Developed a physics-informed deep learning model to estimate bus travel time for specific routes by integrating mechanistic models and advanced deep learning techniques.

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).

Note: You can find my open work/project on my Github.