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Navya Gupta

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Education

University of Illinois Urbana-Champaign - **MS, Statistics (GPA: 4.0/4.0)** **08/2023 — present**
Manipal Institute of Technology - **BTech, Computer Science & Engineering (GPA:4.0/4.0)** **07/2018 — 07/2022**
Dean's List : 2019, 2021, 2022. **(Minor: Big Data)**

Work Experience

Machine Learning Intern, *Bayer Research & Development* | **Python, SQL, R** **05/2024 — present**

- Implementing machine learning models for wheat and canola maturity prediction utilizing **UAV and satellite imagery**, aiming to save resources, optimize harvest timing and crop management strategies (Ongoing).
- Developed statistical Spearman rank correlation model to analyze corn yield performance across harvest moistures, leveraging **time-series data** and diverse agricultural variables, resulting in **$20 million savings on combine investments**.

Graduate Research Assistant, *University of Illinois Urbana-Champaign* | **C++, Python, R** **01/2024 — 05/2024**

- Derived optimized estimation algorithms for statistical analysis of spatial transcriptomics dataset using **diffusion models** and **deep learning techniques**, enhancing accuracy and efficiency in biological data analysis.
- Developed KDE++, a data structure for efficient Kernel Density Estimation in large datasets, implementing **parallel processing** and advanced data handling strategies, resulting in a **45x computational speedup** for large-scale data.

Software Development Engineer, *Citrix Research & Development* | **JavaScript, C, C++** **07/2022 — 07/2023**

- Enhanced Citrix Workspace App for HTML5 and ChromeOS through targeted development, utilizing user data analysis and cloud automation, driving **client base growth to 1M monthly** active users while maintaining regulatory compliance.
- Optimized client-side printing algorithms, resulting in a **20% reduction** in delays; recognized as **Q1 2023's best feature.**

Software Development Intern, *Citrix Research & Development* | **JavaScript, C, C++** **01/2022 — 06/2022**

- Optimized **visualization and analytics with GA4** and created comprehensive documentation **used by over 10+ teams.**

Summer Intern , *Fleetx* | **NodeJS, Java, Python** **08/2021 — 09/2021**

- Tracked driver violations and produced a model to improve safety, resulting in a **15% reduction in speeding incidents.**

Founding member & Head of Web Development, *Manipal BioMachines* | **Python, SQL** **06/2019 — 07/2022**

- Initiated and led the first biology-based student project at Manipal, securing $17K in funding through effective proposal writing, while directing lab experiments to model a prebiotic based on comprehensive data pre-processing and analysis.

Skills

Programming Languages	Python, C / C++, SQL, Java, R, JavaScript, MATLAB.
ML Frameworks	Jax, PyTorch, TensorFlow, pandas, NumPy, SciPy, scikit-learn, OpenCV, matplotlib.
Tools	AWS, Azure, PowerBI, Tableau, Git, Jupyter notebook, SageMaker, MLFlow.

Research Projects (view all projects at: github.com/WonkyVamp)

Decoding Market Anomalies, *UIUC*

- Conducted comprehensive analysis on market data, integrating **sentiment from financial news** as polarity score.
- Built **regression, decision tree and LSTM** models to identify trend and forecast stock prices improving **R2 score to 0.92**.

Independent Research Associate, *Samsung Research India (WonkyVamp/Dimensionality-Reduction)*

- Investigated learning for near infra-red imaging, to project high-dimensional(112) data onto low-dimensions(4).
- Formulated an **auto-encoder neural network** and Gaussian Mixture Model achieving **98.78% accuracy**.
- Accepted at CVPR workshop.

Biomarker Discovery in Cancer Gene, *UIUC (WonkyVamp/Feature-Selection)*

- Controlled the false discovery rate in **high-dimensional** gene expression data for identifying potential cancer biomarkers.
- Selection using Lasso and random forest with the Knockoff filter and gradient boosting achieving an **accuracy of 99.97%**.

Awards & Teaching Positions

- **Department Highest Achiever**, Computer Science and Engineering Department for the year 2021-2022.
- **Gold Medal, iGEM 2020** for Integrated Human Practices, Model and Science Communication.
- **1st Runner up, Bajaj HackRx** amongst 500+ teams in the nation-wide hackathon.
- **Teaching Assistant,** Responsible for leading discussions, grading and holding office hours for Astronomy-121.