Ayushe Gangal

MS CS @ UMass Amherst

📞 857-268-3868 · ✉ agangal@umass.edu · 🔗 AyusheGangal · 💼 ayushegangal · 🐙 AyusheGangal · 🎓 AyusheGangal

Education

University of Massachusetts Amherst September 2021 – May 2023
Master of Science in Computer Science (Data Science Concentration) **GPA: 3.82/4.0** *Massachusetts, USA*

Guru Gobind Singh Indraprastha University August 2017 – May 2021
Bachelor of Technology in Computer Science and Engineering, **CGPA: 8.97/10** *(Rank #2)* *Delhi, India*

Technical Skills

Languages: R, Python (Scipy, Numpy, Keras, TF, PyTorch, OpenCV, Pandas, Seaborn, Streamlit), SQL, SQLite, Java, C, C++, HTML, CSS, JavaScript, Latex. **Developer Tools**: RStudio, VS Code, Eclipse, Google Colab, XCode, Spyder, Jupyter, Microsoft Azure Machine Learning Studio, WordPress, Entity Framework, Fluent Assertions, xUnit, Moq

Experience

Waters Corporation September 2022 – December 2022
Software Engineering Intern – Micro-Apps *Massachusetts, USA*

- Working with the Strategic Engineering team to develop proof of concept software targeting Scientific applications relating to the pharmaceutical and medical industries using Computer Vision in Python, and Streamlit for the interface.

Waters Corporation May 2022 – September 2022
Software Engineering Intern – Data Trending *Massachusetts, USA*

- Improved the usability of the core command line program of the Data Extractor in the Data Trending project by harmonizing the handling of existing options and adding new options for user authentication and retrieving sensitive biochemical data from the Chromatograms.
- Managed the GitHub membership of the team members and performed day-to-day agile practices, participated in code reviews, attended sprint ceremonies, performed manual testing of stories, and participated in planning poker to assign fair story points.
- Utilized Entity Framework to locally create a Database and schema by integrating C# and SQLite for tracking the previous states of the analyzed data from a Chromatogram.

G.B. Pant Govt. Engineering College August 2018 – September 2020
Research Assistant *Delhi, India*

- Researched on Algorithms and Mathematical Machine Learning, and published 6 research articles in International Journals. Utilized Google Colab and majorly worked on Health Informatics using Python. Major published articles:
  - ∗ **Patent:** Subway Train Seat Occupancy Detection Via Instance Segmentation With Point Regression For Peri And Post Covid-19 Era (No.: 202111045336; Journal Number: 42/2021)
  - ∗ **Patent:** GENigma(MayhemNet): Canalizing Stochasticity of Neural Nets into an Insurmountable Encryption Machine (No.: 202011037028; Journal Number: 39/2020)
  - ∗ **Intl. J.:** WisdomNet: Prognosis of COVID-19 with Slender Prospect of False Negative cases and Vaticinating the Probability of Maturation to ARDS using Posteroanterior Chest X-Rays. In Spec. Issue of the Journal of Pure and Applied Microbiology (JPAM).

Tech Mile June 2019 – September 2019
Software Developer Intern *Delhi, India*

- Assisted in developing Suspicious Activity Detection Software. Implemented algorithms like Image recognition and Object identification on real-world data. Performed work-load analysis and performance tuning.

Projects

Mental Health in Tech | *Python, PostgreSQL, Psycopg2* May 2022

- Extracted knowledge, answered questions and improved the latency of the system by up to 4 times by implementing the replicated SeeDB to visualize and extract knowledge from the 'Mental Health in Tech' dataset by obtaining the k most important visualizations automatically.

Patch your Trash | *Python, TensorFlow* May 2022

- Mitigated GPU and RAM usage, and achieved 98.78% accuracy by modelling a patch-based implementation of Fully Convoluted Neural Network (FCN) for detection of soft drink bottles in the trash for easy recycling.

Loan or Not?: EDA, Visualization & Statistical Analysis | *Python, R, RStudio* May 2022

- Studied, analyzed and visualized factors and relationships between the factors which determine the rate of interest and identify potential loan defaulters by applying Machine Learning algorithms, and computed an R2 score of 0.95.

Replication of SeeDB | *Python, PostgreSQL, Psycopg2*   **May 2022**
- Successfully replicated "SeeDB: Efficient Data-Driven Visualization Recommendations to Support Visual Analytics". Performed Exploratory Data analysis and compared various pruning techniques to optimize the system.

AGrow-ML | *Python, PostgreSQL, Psycopg2*   **May 2022**
- Predicted production quantities for a given dataset using Machine Learning algorithms, and evaluated performance using R2 Score and Mean Absolute Percentage Error as metrics. Computed MAPE as 0.063 and R2 score as 0.989.

DeepColor: Automatic Colorization of Grayscale Images | *Python, TensorFlow*   **December 2021**
- Colorized grayscale images from Kaggle's Image Colorization Dataset using embeddings from Google's ResNet v2. Treated the problem as a classification problem, and also carried out an extensive analysis on the affects of various hyper parameters. Achieved generalization accuracy of upto 60%.

Subway Train Seat Occupancy Detection | **Bachelor's Major Project** | *Python, Tkinter, TesnsorFlow*   **June 2021**
- Designed and Implemented a subway train seat occupancy detection system using Computer Vision Algorithms in Python 3.7, which can use the existing CCTV cameras in the train to collect real-world data.
- Engineered a UI using Tkinter for passengers to keep track of vacant seats and the overall distribution of crowd in train, and also implemented the system to detect the people not wearing face masks and breaking the social distancing norms.

Brain Tumor Detection using Quantum Convolutional Neural Networks | *Python, Google Colab*   **January 2021**
- Performed brain tumor segmentation on brain MR images using Quantum Convolutional NN, and classified the tumors into Glioma, Meningioma and Pituitary tumors.
- Proposed a hybrid architecture, integrating the quantum architecture with the State-of-the-art CNN architecture using Google's TensorFlow and TensorFlow Quantum.

Breast Cancer Prediction using Ensemble Techniques | *Python, Tkinter, Spyder*   **December 2019**
- Predicted breast cancer using various ensemble techniques and carried out a cogent analysis of the same. Received A+ in this Industrial Project.

Honors/ Awards

- Participated in the Alumni-Mentorship Program 2021-22. Menteed by Katie House, Founder of Hack(H)er413.
- Invited as a speaker to deliver a lecture on the paper "WisdomNet" in the International Conference on Clinical and Pharmaceutical Microbiology, Paris, France (19th-22nd May) 2021.
- Awarded 'Certificate of Appreciation' for presenting the paper "Prognosis of Breast Cancer" at ICICV 2020.
- Qualified Nationals for the Vishwakarma Awards 2019, organized by AICTE (All India Council for Technical Education), project name: Artificial Intelligence Based Platform For Skill Development And Marketing In Rural Areas.