SARNIKA SANJIV KUMAR

22PD31

Gender	Female
Date of Birth	15th July 2004
Languages known	English, Tamil
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OBJECTIVE

To obtain a position as a student intern from May 2025 to November 2025.

ACADEMIC QUALIFICATION

Currently pursuing 3rd year of 5 year Integrated M.Sc. Data Science at the Department of Applied Mathematics and Computational Sciences at PSG College of Technology.

SKILL SET

Languages	Python, C++ ,Java , SQL
Libraries and Frameworks	NetworkX, Scikit-learn
Tools	PowerBI, Gephi

AREAS OF INTEREST

- Data Analytics and Visualization
- Business Analytics
- Supervised and Unsupervised Learning

ACADEMIC RECORD

- **M.Sc Data Science** — *2022-2027*
  PSG College of Technology, Coimbatore — **7.16 CGPA**
- **XII (Higher secondary, ISC)** — *2022*
  Nazareth Convent High School and Junior College, Udhagamandalam — **89.6 %**
- **X (ICSE)** — *2020*
  Nazareth Convent High School and Junior College, Udhagamandalam — **88.2 %**

NON-ACADEMIC PROJECTS

- **Breast Cancer Detection Using Siamese Neural Networks**
  Developed a breast cancer detection system using a **Siamese neural network** to classify mammograms. Optimized performance with **data augmentation, oversampling, and hyperparameter tuning**. Implemented early stopping and model checkpointing to improve accuracy and prevent overfitting.

- **Cipheart - Heart Disease Classification with Homomorphic Encryption**

  This project utilizes machine learning combined with **homomorphic encryption** using the **CKKS scheme** to build a privacy-preserving application for heart disease classification. The **TenSEAL library** ensures secure data encryption, while classification is performed using **Logistic Regression and Naive Bayes** models. The application is deployed through an interactive Streamlit GUI.

- **Pyramid Scheme Finance Flow Network Based on Social Network Analysis**

  Built a directed graph analysis pipeline in Python with NetworkX to model hierarchical financial structures. Applied **Motif detection and ERGM** to uncover micro-level patterns and connection trends. Designed interactive visualizations with **PyVis and Matplotlib**, extracting insights on operational efficiency and risk management.

ACADEMIC PROJECTS

- **Sudoku**

  This C++ program implements a Sudoku puzzle generator, solver, and player using a **backtracking algorithm**. It generates random Sudoku grids, ensures unique solutions, and provides a **command-line interface for users** to solve puzzles, check rules, or view solutions. The program also includes validation to guide players during gameplay.

- **Ant Colony Optimization**

  This implementation of Ant Colony Optimization (ACO) uses **Tkinter** for a GUI, **NetworkX** for graph visualization, and mathematical computations to solve the traveling salesperson problem. It initializes cities, distances, and pheromones, simulates ant tours, updates pheromones iteratively.

- **F1 Voting System**

  An F1 Driver of the Day Voting system project using **socket programming with the TCP protocol**. Implementation of a **multi-threaded voting server** using Python's socket and threading libraries. It listens for incoming connections, authenticates voters, processes votes, and uses locks to manage concurrent access to shared resources.

EXTRA-CURRICULARS AND ACHIEVEMENTS

- Participant in ACM India-Summer School 2024 on Compilers for AI / ML Programs.
- Captain of the Basketball Team.
- Deputy Games Captain at school (2019-2020).

DECLARATION

I, Sarnika Sanjiv Kumar, do hereby confirm that the information given above is true to the best of my knowledge.

Place: Coimbatore
Date : 11/02/2025 (Sarnika Sanjiv Kumar)