Arjun Das

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Education

- **Vellore Institute of Technology, Vellore** *2020-2024*
  Bachelor of Technology CGPA: 9.04/10
  Computer Science and Engineering with specialization in Data Science

Work Experience

- **Wells Fargo** *Jul 2024 - present*
  Advanced Data and Analytics Program Associate Bengaluru
  – To develop advanced analytics solutions in accordance with the bank's top priorities
  – Develop and execute data-driven solutions across modeling, marketing sciences, channel analytics, and customer sciences areas

Internship Experience

- **Mjunction Services Ltd.** *Feb 2024 - Apr 2024*
  Analyst Intern Remote
  – Project RACE - Insights on the platform's auction bidders and analysis of their bid materials
  – MongoDB and Pandas for data analysis pipeline, API building with FastAPI, testing with SwaggerUI, and UI Design with Streamlit

- **National Atmospheric Research Laboratory (Govt. of India)** *Jun 2023 - Dec 2023*
  Deep Learning Intern Remote
  – Bias reduction in rainfall forecasts with emphasis on precision in data processing and model training
  – GPU Processing utilization for handling big data in a state-of-the-art High-Performance Computing lab
  – Bidirectional Recurrent Neural Networks applied to address bias in rainfall predictions

- **UPL Ltd.** *May 2023 - Jul 2023*
  Data Analyst Intern Bengaluru
  – Molecule 360 - An interactive web application for essential real-time insights on molecules of prime concern
  – Information extraction of latest news and molecule patent registrations, information retrieval of molecule trade and market data, data processing, analysis, and visualization using Python, and the application's working Proof of Concept with an intuitive UI design using Figma and front end with React

- **Zoetis Inc.** *Jun 2022 - Jul 2022*
  Software Engineer Intern Navi Mumbai
  – Upgrade and digitalize workflow systems and build a new end-to-end Inventory Management system
  – Creating efficient automation processes for the Supply Chain, Operations, and Outsourcing departments
  – Improving Material Request and Delivery turn-around time and developing KPIs for workflow efficiency

- **NM Dev** *Feb 2022 - May 2022*
  Machine Learning Research Intern Remote
  – Building Java and Kotlin libraries for NM Dev's expansion towards Machine Learning algorithms
  – Increasing versatility of S2 IDE for Kotlin to include statistical distributions and statistical tests
  – Creating documentation for the algorithms with WordPress development and Elementor

Projects

- **MATLAB to Embedded-C Programming Language Translation** *Funded by Texas Instruments*
  – To build an open-sourced highly efficient transcompiler from MATLAB to Embedded-C
  – To incorporate motion detection Deep Learning models scripted in MATLAB to microcontrollers
  – Approach includes a combination of building abstract syntax trees, use advanced recurrent neural networks, and prompt engineering on GPTs to translate code

- **Influence Maximization in Real-Time Social Networks** *Capstone Project*
  - To create an improved meta-heuristic algorithm by combining Ant Colony Optimization and Simulated Annealing approaches for influence maximization
  - Create an Ordinary Differential Equation with time as the changing factor to simulate dynamically evolving real-time social networks, and simulate the maximization capability of the proposed algorithm over time
- **DRAM Addressing Attack** *Computer Architecture and Organization*
  - A cross-CPU side-channel attack to exploit the DRAM bank's physical address and mapping using reverse engineering methods on a 9th Gen Intel i7 processor
  - To establish a covert channel of communication between two processes running on the same machine using C and C++
- **AI-based Medical Specialist Recommendation System** *Artificial Intelligence*
  - A system that predicts a medical professional to patients for consultation based on their symptoms
  - Stacking ensemble of SVM, KNN, and Decision Tree having 96% accuracy and GUI built with Tkinter
- **Precision Strike** *Human Computer Interaction*
  - A first-person shooting game built for lethargic eye patients to combat and improve cognitive abilities
  - Built on unity with C#, launched on Epic Games with reinforcement learning aiding to gradually alter the game's level of difficulty, and interface validation using Nielsen's heuristics and Norman's principles
- **Application for Leukemia using Deep Learning and Steganography** *Image Processing*
  - A non-chemical system that detects Acute Lymphoblastic Leukemia using microscope images of WBCs
  - Otsu thresholding of microscope images and fine-tuned CNN architecture with 98% precision, with decision confidence of leukemia blasts hidden in the image using LSB algorithm, and web app made with Django
- **Local Stocks - Cultivating Ideas for Growth** *Lean Startup Management*
  - A website to connect urban farmers with customers, delivering freshly harvested produce directly to home and eliminating the need for middlemen or their poorly maintained supply chain
  - Aiding farmers with optimized farming practices using volunteering programs by experts
  - Minimum Viable Product, Business and Lean Business Model Canvas, Market Analysis, Marketing Strategies, and Financial Planning were created along with the application prototype using MEAN stack
- **Algorithmic Trading Indicator using Long Short-Term Memory** *Machine Learning*
  - A generalized financial assets trading indicator tested on the BTC-USDT cryptocurrency deployed on TradingView using Pine Script with Python backend to get Long and Short trade signals
  - Hyperparameter tuning of the LSTM model in TensorFlow to yield nearly accurate market indication
  - Ten successive trades from the signals led to a 20x increase in the initial investment
- **Facial recognition based idAM for File Hiding** *Information Security*
  - A system to hide confidential data folders on Windows system using facial recognition
  - Ensuring no possible alternative to access folders other than absolute facial match
  - Batch file as the access entry point with LBP Cascade and Haar Cascade algorithms for facial recognition

Publications

Das, Arjun (2021). "Implementation of Artificial Intelligence in Heathcare Framework". In: *International Journal of Research in Humanities, Arts and Science* 5 (6), pp. 28–31.

- **Analyzing the Role of Weak Nodes in Information Diffusion Across Social Networks**
  Submitted to Elsevier Expert Systems With Applications
  - A research based on the strength of ties in real-world social media networks, comparing the extent of diffusion and computational complexity of weak nodes approach with most centrality measure and some heuristics-based influence maximization algorithms
  - Weak Nodes approach is statistically significantly better than other approaches using a pairwise two-tailed t-test with 95% confidence

- **Effects of Echo Chambers in Social Networks for Diffusion of Information**
  Submitted to Elsevier Social Networks
  - A study to analyze the impact of network and opinion polarization on the virality of information in Erdős–Rényi social networks
  - Challenging traditional beliefs about echo chambers and highlighting the possible implications of having echo chambers in social networks

Achievements

- High school Valedictorian for the academic batch of 2019-20
- Times NIE 'Student of The Year' Award for outstanding academic performance
- Achieved Distinction at the Australian National Chemistry Quiz (now ICQ)
- Achieved a Guinness World Record by actively participating in the sanitary hands team of Fortis

Skills

Programming	C, C++, C#, Java, Python, Kotlin, MATLAB, R
Web Development	HTML, JavaScript, CSS
Electronics Software	OrCAD Pspice, LTSpice, Autodesk Tinkercad
Databases	Oracle SQL, MySQL, BigQuery, MongoDB
Cloud Platform	Amazon Web Services, Google Cloud Platform, Microsoft Azure
Language	Proficient - English, Hindi, and Bengali
	Competent - Marathi, French, and Spanish

Certifications

- BigQuery Basics for Data Analysts *Coursera*
- Building Advanced Codeless Pipelines on Cloud Data Fusion *Coursera*
- End-to-End Machine Learning with TensorFlow on GCP *Coursera*
- How Google does Machine Learning *Coursera*
- Azure Databricks & Spark for Data Engineers *Udemy*
- Python for Excel: Use xlwings for Data Science and Finance *Udemy*
- Microsoft Power BI Desktop for Business Intelligence *Udemy*
- Algorithmic Trading A-Z with Python, Machine Learning & AWS *Udemy*
- NLP – Natural Language Processing with Python *Udemy*

Extracurriculars

Volunteering
- Created awareness and assisted in fundraising for elderly people with Help Age India
- Completed 10 hours of United Nations' youth volunteering project under Anant Vikas

Editorial Activities
- Senior core committee member in the editorial department of VIT LEO Club
- Part of the dynamic editorial team of Times of India NIE newspaper

Student Body Government
- Leading the high school Student Council as the President
- President of the Rotary's Interact Club for students

Technical Clubs
- Senior Core Committee Member of Technical Domain at VIT Mathematical Association
- Senior Core Member of Machine Learning Domain at Mozilla Firefox Club

Sports
- Represented Maharashtra at the CISCE National Level Athletics Meet
  (Events - 110m hurdles, 5km walk, 4x100m relay, 4x400m relay)
- Represented Mumbai at the DSO State Level Athletics Meet. Event - 100m sprint