

Ananya Ghosh

Pre-final year, Integrated 5yr MTech (Computer Science & Engineering)
Vellore Institute of Technology, Vellore (NIRF rank 11th 2023)

**Artificial Intelligence, Machine Learning, Deep learning, Data Science,
Federated Learning, NLP, Full stack Software Developer**

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FIND MY PROFILE



Passport: Valid up to 2029

PROFILE SUMMARY

I am a 4th year student pursuing Integrated MTech (CSE) at Vellore Institute of Technology (VIT), Vellore (NIRF rank 11th 2023). I have worked on **17 projects** on different technical domains including Artificial Intelligence (AI), Machine Learning (ML), Deep Learning (DL), Natural Language Processing (NLP), Data Analysis, Full Stack Web Development etc, using Python, C and C++. I have worked on **7 internships** at DRDO, SocialWell, Goldman Sachs and LetsGrowMore etc. I have engaged myself in **14 research works** on different technical domains including AI, ML, DL, NLP etc, out of which one paper got already published, 3 papers are accepted at international conferences and 6 are under review by publication houses and rest of the research works are in progress. Along with my own domain knowledge, I have a fair understanding of Healthcare, Environment, Sustainability, Net Zero, Carbon Footprint etc.

EDUCATION



Vellore Institute of Technology, Vellore, India
Integrated M Tech in Computer Science & Engineering (CSE), 2020-2025, 4th year Student, **8.91/10 CGPA**



Delhi Public School, Ruby Park, Kolkata, India
AISCE CBSE (10+2) PCMB, 2018-2020, **94%**



G.D. Birla Centre for Education, Kolkata, India
ICSE (10th), 2006-2018, **96%**

RESEARCH WORK & PUBLICATIONS

As an Undergraduate Researcher at Vellore Institute of Technology, I have undertaken various research project under guidance of some eminent professors.

- **Research 1:** Artificial Intelligence In Bringing A Revolution In The Healthcare Industry (**Published**) - [Link](#)
- **Research 2:** DifEvoDenseFed: Differential Evolution Optimization based DenseNet Federated Model in Alzheimer's detection- (**Published**) - [Link](#)
- **Research 3:** DenseFed-PSO: Particle Swarm Optimization based DenseNet Federated Model in Alzheimer's detection- (**Accepted**) - 8th International Symposium on Intelligent Informatics (ISI'23)
- **Research 4:** FedXAI-ISL: Explainable Artificial Intelligence based Federated Model in Indian Sign Language- (**Accepted**) - International Conference on Innovative Computing and Communication (ICICC'24)
- **Research 5:** ThingSenseAI: Multimodal Quantized GenerativeAI and LLM models with IoT Sensory Network based Personal Healthcare Research - (Ongoing)
- **Research 6:** Alzheimer's Disease Prediction using AxCoSa Multi-Deep Neural Network Architecture - (Under Review- Springer-SCImago)
- **Research 7:** Federated Average Distillation Conditional Mutual Learning in Waste Management- (Under Review- Springer-SCImago)
- **Research 8:** Federated Average Evolutionary Stochastic Gradient Learning in Marine Plastic Pollution Management- (Under Review- Springer-SCImago)
- **Research 9:** Hyper-Parameter-Tuned-Ensembled-Transfer Learning-Genetic-Algorithm-Optimized-Model-PCOS-Prediction - (Submitted)
- **Research 10:** Comparative Analysis on Ensemble Crow Search Algorithm and Ant Colony Optimization on Heart Disease and Breast Cancer Detection- (Under Review- SCOPUS)
- **Research 11:** Synergizing IoT and Drone Solutions for Advanced Surveillance and Integrated Health Monitoring- (Ongoing)
- **Research 12:** Chronic-Kidney-Tumor-Detection-using-ML-DL - (Submitted)
- **Research 13:** OncoLensAI: AI-driven Interactive Oncology Resource- (Ongoing)
- **Research 14:** QueryMintAI: Multipurpose Multimodal Large Language Models for Personal Data- (Submitted)

Technical Blogs

- Artificial Intelligence in Healthcare- [Link](#)
- Future & Scope of IoT- [Link](#)

NOTABLE ACHIEVEMENTS

- ✦ **Two Merit Certificates** (Top 3 students in the class), awarded for the year 2020-21 & 2021-22 at VIT.
- ✦ **'Achiever Certificate'** awarded by VIT in 2021-22, for Outstanding Performance at National level Competitions.
- ✦ **Microsoft Learn Student Ambassador (Beta)** appointed by Microsoft and **IBM Z Ambassador** appointed by IBM
- ✦ **10+ Tutorials Delivered** for Students of various universities/ engineering colleges (including peers and seniors)
- ✦ Won several **Hackathons** at National & international events
- ✦ **Technical Head** in Board of IEEE Women in Engineering, VIT.
- ✦ **Scholar Badge** by DPS Ruby Park School for Outstanding Academic Performance in 12th board CBSE examination.

KEY SKILLS

➤ Artificial Intelligence

Machine Learning, Federated Learning, Transfer Learning, Deep Learning, NLP, Computer Vision, Data Science, Explainable AI, Generative AI, Large Language Model, Langchain, AI Optimization, RAG, Knowledge Graphs, Domain Adaptation, ReACT, Directional Stimulus Prompting, Prompt Engineering, Text Analytics

➤ Full Stack Web Software Development

UI/UX (Figma), Frontend (HTML, CSS, Angular, JavaScript, Tailwind), Backend (Django, Flask, NodeJS), Database (SQL), ODK, ETL, Software Development Life Cycle, Jenkins, Git, Docker

➤ Coding Languages

 - Python, C/C++, Java, R

➤ Internet of Things

 - IoT APIs, Arduino, Drone, RaspberryPi, Sensors

➤ Blockchain

 - Ethereum, Solidity

➤ Augmented Reality

 - Unity3D, C#, Vuforia

INTERNSHIP EXPERIENCE

MITACS GRI (prestigious fully funded global research internship)



University of British Columbia, Canada (QS World Rank 34)
AI, NLP, DL & Software Research Intern (May 2024-Aug 2024)



Defence Research and Development Organisation (DRDO)
Software Development and Quality Intern (May-June, 2023)



Microsoft

Beta Microsoft Learn Student Ambassador (October 2021-January 2023)



IBM

IBM Z Ambassador (September 2021-2023)



Social Well (IT Company in Agri)

AI & ML Intern, December 2022 - March 2023



GirlScript WoC

Open Source Contributor (Python Backend Dev, Open Source, ML)
August 2021-December 2021



LetsGrowMore

Web Development Intern (June 2021-July 2021)

POSITIONS OF RESPONSIBILITY



IEEE Women In Engineering, Technical Head, 2021-23

IEEE Signal Processing Society, Senior Core Committee

IEEE Professional Comm Society, Technical Mentor

Institution for Engineering and Technology, Core Member

CERTIFICATIONS

- **Software Engineering-** JPMorgan Chase & Co.'s Software Engineering on Forage- [Link](#)
- **Quantitative Research-** JPMorgan Chase & Co.'s Quantitative Research on Forage- [Link](#)
- **FinTech Engineering-** Goldman Sachs's Software Engineering on Forage- [Link](#)
- **Python Programming-** Scaler- [Link](#)
- **GenAI, LLM, BERT, Encoder-Decoder-** Google Cloud Skills Badges- [Link](#)

ACADEMIC COURSES AND SKILLS COMPLETED

- Operating System Principles and Linux
- Software Engineering Principles
- Application Development and Deployment Architecture
- Cloud Computing Technologies
- Digital logic and Computer Design
- Data Structures and Advanced Algorithm Analysis
- Database Management Systems
- Principles of Compiler Design
- Data Communication and Networks TCP/IP
- Programming in Java
- Front End Design and Testing, Server-Side Programming
- Microprocessor Interfacing
- Applied Cryptography and Network Security, Cyber Security
- Artificial Intelligence and Expert Systems
- Advanced Python/ C Programming
- Deep Learning, Machine Learning, Soft Computing
- Natural Language Processing and Computational Linguistics
- Internet of Everything
- Text Mining, Web Mining, Social Network Analysis
- Blockchain Technologies

MY PROJECTS (Excluding Research Work)

1. **LifeAI- Multiple Disease Predictor Software**
Predicts Alzheimer's Dementia Prediction- 2D CNN for Dementia Architecture, Breast Cancer Prediction- Hyperparameter Tuning and Genetic Algorithm, Heart Disease Prediction- Ensemble Learning with Ant Colony Optimization, Diabetes Prediction- Supervised Learning with Crow Search Optimization, Parkinson's Disease Prediction- Voice data SVM, Lung Cancer prediction using XGBoost- [Link](#)
2. **Simple GPT OpenAI API, Langchain, LLM based Target database Question Answer Flask Web application for Women Health-** [Link](#)
3. **Patient Condition Prediction and Drug Recommendation using Flask, NLP, ML classification, Speech to text and sentiment analysis features-** [Link](#)
4. **Industrial Incident Reporting, Investigation & Management Software-** Full Stack Web Software Development- [Link](#)
5. **ESG Software (Environmental, Social, Governance) - Full Stack Web Software Development-** [Link](#)
6. **GreenHouseGas Scope 1, 2, 3 Emission Calculator for industries-** Full Stack Web Software Development using Streamlit
7. **Tuition Management System - Full Stack Web Software Development-** [Link](#)
8. **EduVision - AR based Education for All while connecting all stakeholders of Education Augmented Reality & Web Development-** [Link](#)
9. **KrishiSahayak- Full stack Web Application to connect all the stakeholders of the Agriculture system in India -** [Link](#)
10. **Donation and Vaccine- Web Application and chatbot for organ, plasma and blood donation and COVID-19 vaccine program registration -** [Link](#)
11. **Fake Job Detection using NLP and Machine learning-** [Link](#)
12. **Sentiment Analysis of Twitter using NLP and Machine learning-** [Link](#)
13. **Real Time Web Chat Application using Node Js & Socket.io-** [Link](#)
14. **HackX Website- The Hackathon website for IEEE SPS VIT Hackathon -** [Link](#)
15. **Game Database Website using AngularJs and a public API-** [Link](#)
16. **ToDo App using AngularJs and Azure Services-** [Link](#)
17. **Handwritten Text Recognition, Face recognition using OpenCV and pytesseract-** [Link](#)

TUTORIALS DELIVERED

- 10+ Tutorials Delivered in Online/Offline mode for Students of various universities and engineering colleges (including peers and seniors), on various topics on Node Js, AngularJs, Azure, Full Stack Web Development, Django Backend, Data Structures, Space Science, Arduino and IOT.
- Microsoft Learn Student Ambassador Webinars- [Visit](#)
 - Django - [Visit](#)
 - Complete Web Development Roadmap-[Visit](#)
 - Arduino session- [Visit](#)
 - Arrays || Data Structures- [Visit](#)
 - SEDS VIT Outreach Session || Basics of Space and Astronomy-[Visit](#)

EXTRACURRICULAR ACTIVITIES



Students for the Exploration and Development of Space, VIT
Core Committee Member, Jan 2021-Jan 2023



Team UAV, VIT
Core Committee Member, Jan 2021-Mar 2021



Energy & Environment Protection Club, VIT
Core Committee Member, Jan 2021-April 2021



International Model United Nations
Official Campus Ambassador, June 2021-January 2022

HACKATHONS

- ✦ HackOff v3.0 IET VIT
- ✦ HackVerse 2.0 NIT Suratkal
- ✦ SheHacks'21, IIIT Allahabad
- ✦ HackNITP'21, NIT Patna- Girls Track Winner
- ✦ Access Denied'21 VIT Vellore- Education Track Winner
- ✦ Women Techies'21 DSC VIT
- ✦ HackNITR 2.0 NIT Rourkela
- ✦ MozoHack 2.1 SRM KZILLA,
- ✦ HackTrix IEEE SRM
- ✦ BU Hack Bennett University
- ✦ BitBox DSC JIIT
- ✦ KJSCE Hack 5.0 Code Cell
- ✦ iHack ISA VIT
- ✦ Tempora IEEE SPS VIT
- ✦ HULT PRIZE CHAMPIONSHIP 2021 On- Campus

CULTURAL

Won several awards at School & college and various state level competitions -

- ✦ Singing (Indian Classical & Contemporary)
- ✦ Dancing (Kathak & Indian Contemporary)
- ✦ Painting
- ✦ Recitation

COUNTRIES VISITED

France, Italy, Switzerland, Hong Kong, Egypt, Dubai, Thailand, Sri Lanka, Maldives

CODING & RESEARCH PROFILES

ResearchGate:- <https://www.researchgate.net/profile/Ananya-Ghosh-11>

GitHub- <https://github.com/A-GHOSH-dev>

Hackerrank- https://www.hackerrank.com/ananya_ghosh2020?hr_r=1

Leetcode- <https://leetcode.com/AnanyaGhosh/>