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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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 16 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 12 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

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

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

RESEARCH WORK

- Research 1: GenerativeAI and LLM based Research – (Ongoing)
- Research 2: Alzheimer's Disease Prediction using AxCoSa Multi-Deep Neural Network Architecture – (Under Review- Springer-SCImago)
- Research 3: Federated Average Distillation Conditional Mutual Learning in Waste Management- (Under Review- Springer-SCImago)
- Research 4: DenseFed-PSO: Particle Swarm Optimization based DenseNet Federated Model in Alzheimer's detection-(Accepted- 8th International Symposium on Intelligent Informatics (ISI'23))
- Research 5: FedXAI-ISL: Explainable Artificial Intelligence based Federated Model in Indian Sign Language-(Accepted- International Conference on Innovative Computing and Communication (ICICC)'24)
- Research 6: Federated Average Evolutionary Stochastic Gradient Learning in Marine Plastic Pollution Management-(Under Review- Springer-SCImago)
- Research 7: Hyper-Parameter-Tuned-Ensembled-Transfer Learning-Genetic-Algorithm-Optimized-Model-PCOS-Prediction - (Ongoing)
- Research 8: Comparative Analysis on Ensemble Crow Search Algorithm and Ant Colony Optimization on Heart Disease and Breast Cancer Detection-(Under Review- SCOPUS)
- Research 9: Artificial Intelligence in Bringing about a Revolution in the Healthcare Industry (Published)- Link
- Research 10: DifEvoDenseFed: Differential Evolution Optimization based DenseNet Federated Model in Alzheimer's detection-(Accepted- 2023 IEEE International Conference on Next Generation Electronics (NEleX 2023))
- Research 11: Synergizing IoT and Drone Solutions for Advanced Surveillance and Integrated Health Monitoring-(Ongoing)
- Research 12: Chronic-Kidney-Tumor-Detection-using-ML-DL - (Ongoing)

PUBLICATIONS

Technical Research Papers
Artificial Intelligence In Bringing A Revolution In The Healthcare Industry- (E-ISSN: 2456-5571) Jan 15, 2021 BODHI International Journal of Research, Research & Publication Services (CRRPS), India - Link

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

- ➤ **Full Stack Web Software Development**
  UI/UX (Figma, Adobe PS, Canva), Frontend (HTML, CSS, Angular, JavaScript, Tailwind), Backend (Django, Flask, NodeJS), Database (SQL), ODK, ETL, Software Development, Project Principles and Life Cycle, Jenkins, Git, Docker
- ➤ **Artificial Intelligence**
  Machine Learning, Federated Learning, Transfer Learning, Deep Learning, Neural Network, Natural Language Processing, Computer Vision, Data Science, Explainable AI (XAI), Generative AI, LLM
- ➤ **Coding Languages** - Python, C/C++, Java
- ➤ **Internet of Things**- IoT APIs, Arduino, Drone, RaspberryPi, Sensors, MIT App Inventor
- ➤ **Blockchain** - Ethereum, Solidity
- ➤ **Augmented Reality**- Unity3D, C#, Vuforia

INTERNSHIP EXPERIENCE

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)

Goldman Sachs
FinTech Virtual Experience Program (December 2022)

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, VIT
Technical Head, Jan 2021-Present

IEEE Signal Processing Society, VIT
Senior Core Committee Member Jan 2021-Present

IEEE Professional Communication Society, VIT
Technical Mentor, May 2021-Present

Institution for Engineering and Technology, VIT
Core Committee Member, Dec 2020-Present

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
- Blockchain Technologies

MY PROJECTS

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- https://github.com/A-GHOSH-dev/LifeAI-Multiple-Disease-Prediction-ML-AI-Software
2. **Simple GPT OpenAI API, Langchain, LLM** based Target database Question Answer Flask Web application for Women Health- https://github.com/A-GHOSH-dev/Simple-GPT-QA-OpenAI
3. **Patient Condition Prediction and Drug Recommendation** using Flask, NLP, ML classification, Speech to text and sentiment analysis features https://github.com/A-GHOSH-dev/Patient-s-Condition-Classification-and-Drugs-Recommendation-NLP-Flask-Web-App
4. **Industrial Incident Reporting, Investigation & Management Software**- Full Stack Web Software Development- https://github.com/A-GHOSH-dev/DBMS-Project
5. **ESG Software (Environmental, Social, Governance)** - Full Stack Web Software Development-https://github.com/A-GHOSH-dev/ESG-Software
6. **Tuition Management System** - Full Stack Web Software Development https://github.com/A-GHOSH-dev/Tuition-Management-Software
7. **EduVision - AR based Education** for All while connecting all stakeholders of Education Augmented Reality & Web Development https://youtu.be/43FutdjrHhE
8. **KrishiSahayak**- Full stack Web Application to connect all the stakeholders of the Agriculture system in India https://www.youtube.com/watch?v=mkJ4upvsbBM&t=52s
9. **Donation and Vaccine**- Web Application and chatbot for organ, plasma and blood donation and COVID-19 vaccine program registration https://youtu.be/orM0XbbdUcI
10. **Fake Job Detection** using NLP and Machine learning https://github.com/A-GHOSH-dev/FakeJobDetection-BCD
11. **Sentiment Analysis of Twitter** using NLP and Machine learning https://github.com/A-GHOSH-dev/ML-and-NLP-based-Sentiment-Analysis-of-Twitter
12. **Real Time Web Chat Application** using Node Js & Socket.io https://github.com/A-GHOSH-dev/Node-Js-101-with-VS-Code-Azure-Devops-MLSA-Webinar-2
13. **HackX Website**- The Hackathon website for IEEE SPS VIT Hackathon https://www.spsvithackx.com/
14. **Game Database Website** using AngularJs and a public API https://github.com/A-GHOSH-dev/Game-database-Website-using-Angular-and-Public-API
15. **ToDo App** using AngularJs and Azure Services- https://github.com/A-GHOSH-dev/Angular-Js-101-with-VS-Code-Azure-MLSA-Webinar-1
16. **Handwritten Text Recognition, Face recognition** using OpenCV and pytesseract- https://github.com/A-GHOSH-dev/Handwritten-text-image-text-extraction

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- https://www.youtube.com/playlist?list=PLTCQHHJ6a3vUbEqO5GTKEDUof2woI0C9W
- Django - https://www.youtube.com/watch?v=kTbDRtJzC6I&t=69s
- Complete Web Development Roadmap- https://www.youtube.com/watch?v=iBvhv5Z5yBo&t=135s
- Arduino session- https://www.youtube.com/watch?v=umaSn3Exfi0
- Arrays || Data Structures- https://www.youtube.com/watch?v=pjFjnOi74GA&list=PLtp4G3I0nml4vZJ_ljllkh9QtHxbTbaWB&index=2
- SEDS VIT Outreach Session || Basics of Space and Astronomy- https://www.youtube.com/watch?v=bFf8FsMBEow&t=25s

EXTRACURRICULAR ACTIVITIES

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

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
- 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/