AYAN BANERJEE

ACADEMIC PROFILE

Degree/Certificate	Institution	Percentage/CGPA	Year
M-Tech (Extractive Metallurgy)	Metallurgical Engineering IIT (BHU), Varanasi	7.91	2025
B-Tech , Mechanical engineering	Veer Surendra Sai University of Technology, Burla	7.62	2022
ISC (XII)	Loyola School, Jamshedpur	70.60	2018
ICSE (X)	Loyola School, Jamshedpur	90.00	2016

SKILLS

- **Programming Languages** - C , Java , Python
- **Microsoft Office** - Microsoft Excel with Open AI and Chat GPT, Power BI , Automate X
- **Mechanical Engineering Softwares** - Solidworks , Ansys(CFD, Structural&Thermal)
- **Others** - Data Structures , ML , SQL , OOPs

WORK EXPERIENCE

L&T Technology Services Feb 2022 - Dec 2022

Associate Engineer Trainee

- Attended **LTTS -STEPin Program** Delivered by **Global Engineers Academy**
- **Topics** - coating , Surface Finishing , Heat Treatment ,Theories of Failure , Design under Fluctuating Loads , Creep , **Manufacturing Processes**

INTERNSHIP/TRAINING

Tata Steel Summer Internship Training July 2020 - Aug 2020

RELIABILITY IMPORVEMENT OF HEAT EXCHANGER AT BATCH ANNEALING FURNACE , TATA STEEL

- Acquired a foundational understanding of **Steel Making** at an industrial scale, with a focus on key processes, including **Iron Making** , **Steel Conversion** , and the **Rolling Process** .
- Analyzed the layout and operational principles of **Batch Annealing Furnaces** .
- Gained knowledge of the application and selection of various **Heat Exchanger** Types in steel manufacturing facilities.
- Studied the **Techniques for Enhancing the Efficiency and Effectiveness of Heat Exchangers** in the steel industry.

PROJECTS

Ardent Software Services Internship Training July 2024 - September 2024

Exploration of Generative AI and Large Language Model Applications

- **Synthetic Data Generation with GANs** : Developed GANs to create realistic datasets by optimizing generator-discriminator interactions.
- **Advanced NLP with LLMs** : Worked on transformer-based LLMs for tasks like text embedding and sentiment analysis.
- **Text-to-Image Generation** : Designed pipelines using stable diffusion models for creating photorealistic images from text prompts.
- **Text-to-Video Framework** : Built systems to generate smooth and contextually accurate video sequences from textual descriptions.

B-tech Project Jan 2021 - March 2022

Comparative Study of Selective Laser Sintered Materials for Aircraft Thermal Protection Systems

- Explored various materials used in **aircraft thermal protection** .
- Analyzed manufacturing processes using **selective laser sintering (SLS)** .
- Studied the working mechanisms of **aircraft thermal protection systems** .
  This project enhanced my understanding of material selection, SLS technology, and TPS performance in aerospace applications.

M-Tech ongoing project Jan 2024 - present

Comprehensive Development of Tool Steels for Friction Stir Welding: A Synergistic Approach Using Characterization and Simulation Techniques.

- Application of **characterization techniques** like X-ray diffraction (XRD), Scanning electron microscopy (SEM), and Transmission electron microscopy (TEM) for understanding the phase evolution in the conventional and high entropy tool steel
- Analysis of the Indentation **behaviour** of the conventional and high entropy tool steel
- Comparative study of the conventional and high entropy tool steel using **machine learning approach** .
- **Microstructural simulation** for the comparative study of the phase evolution in conventional and high entropy tool steel.

Miscellaneous Project 1 month

IRCTC ticket Booking Process Automation

- *Automated * the* IRCTC online ticket booking process* using Python for faster Ticket Booking experience.

CERTIFIED COURSES

Steel Quality: Role of Secondary Refining & Continuous Cating Jan 2024 - Apr 2024

NPTEL certified course by IIT MADRAS

- Got **ELITE** certification

Mastering Machine Learning with Python Jan 2024 - Mar 2024

- **IIT Roorkee** & **RBPL** certification

Machine Learning for Engineering and Science Applications Jan 2024 - Apr 2024

NPTEL certified course by IIT MADRAS

- Got **ELITE** certification

Mastering Database Management with SQL 30 Mar 2024 - 19 May 2024

- **IIT Roorkee** & **RBPL** certification

POSITION OF RESPONSIBILITY

Teaching Assistantship July - present

- Assisted in conducting **Ferrous Metallurgy Lab , MT-313** for 3rd year B-tech students

HONOURS AND ACHIEVEMENTS

- Achieved **92.75** percentile in **Jee Mains 2018**.
- Achieved **88.52** percentile in **GATE 2023**.

EXTRA-CURRICULAR ACTIVITIES

Supercomputing Workshop 6 days

Organised by IIT BHU

- Got idea about **High Performance Supercomputing**
- Introduction to **Parallel Computing /AI/Machine Learning/ Deep Learning** & **Application Specific Training**

Advanced Materials Testing and Characterization workshop July - Aug

Conducted by -NIT Hamirpur

- X-Ray Diffraction , Optical Microscopy , SEM , TEM
- Tensile Testing , Nano , Micro Hardness Testing
- Microstructural Characterization & Fatigue Testing

Software Technology Workshop 2 Weeks

Conducted by C-cube club of NIT ROURKELA

- Workshop based on **Designing softwares** like CATIA and other **Video editing** and **Photo editing Tools**

AI & Automation in MS Excel August - 1 day

- Got an idea about how **automate** our Power point & excel and reduce the working time using tools like **Automate X** and **Open AI** in **MS Office**.

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