Aryash Srivastava | **22B1506**
Energy Science and Engineering | **B.Tech.**
Indian Institute of Technology Bombay | **Gender: Male**
DOB: 06/05/2004

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2026	
Intermediate	CBSE	Alard Public School	2022	96.00%
Matriculation	CBSE	Podar International School	2020	97.20%

Currently pursuing a **Dual minor** in **Computer Science and Engineering** and **AI & Data Science** (C-MINDS)

Scholastic Achievements

- Obtained **99.77 percentile** in JEE Mains 2022 Exam competing with over 1 million candidates *(2022)*
- Ranked in **top 1.4%** of JEE Advanced 2022 Exam, competing with over 0.15 million candidates *(2022)*
- Secured **9.4+** SPI in 4th semester | Grabbed **AA/AB** grade in **17** courses for academic excellence *(2024)*
- Consistently bagged **state rank 1** in the Beanstalk Maths Olympiad for two years, winning a trophy *(2015,2016)*
- Placed 1st runner-up in Eco-Achievers Quiz organized by SAEVUS and Belgaum District *(2016)*

Professional Experience

Data Analyst Intern | *NoQs Digital* *(May-Jun 2024)*

*Awarded a **Letter of Recomendation** & **Stand out Performer Award** for exceptional performance in the Internship tenure*

- Assisted Product Managers to oversee thousands of tasks by developing **Dynamic Dashboard** on Google Sheets
- Presented **key insights** from dashboard, visualizing workload, performance & profile map for every employee
- Developed automated functions using **Google Apps Script** with JavaScript to streamline various tasks
- Solved a Case Study for the status of fixed deposits for an individual, focusing on linked FDs and 15G FY forms
- Created **PowerBI** Dashboard to predict best banks profits by period and display metrics like matured policies

Key Projects

Real time Face Recognition System | Winter in Data Science 2023 *(Dec 2023-Jan-2024)*

Analytics Club IIT Bombay | Mentors: Mr. Dhruv Pandey & Mr. Hemant Bamb

- Used Siamese Network to train **One shot Learning** Model for generating Real-Time Face Recognition System
- **Pre-processed & Augmented** the images in the dataset to ensure a biased approach towards facial Features
- Created 9-layer Convolutional Model to extract features followed by building distance layer & Triplet Loss layer
- Employed Transfer Learning by importing **VGG16** inbuilt model & enhancing the accuracy from **68% to 88%**
- Performed Real-Time Test of the model using **OpenCV** & Hyper-parameter tuning for enhancing Precision

Image Caption Generator | Seasons of Code 2024 *(May 2024-Jul 2024)*

Web n Coding Club IIT Bombay | Mentor: Ms. Likhita Manduri

- Developed an algorithm to generate descriptive captions encapsulating the dynamic scenes depicted in images
- Built an architecture integrating **VGG16** for image feature extraction and **LSTM network** for text generation
- Used the Flickr8k dataset to train the model on a wide spectrum of **visual scenarios and linguistic expressions**

Compress Me If You Can | CS-419 Intro to Machine Learning *(Mar 2024- May 2024)*

Course Project | Guide: Prof. Abir De, Department of Computer Science & Engineering

- Tried methods such as **Discrete Cosine Transform** taken by Huffmann Coding & **AutoEncoders** to compress data.
- Worked on compression, transmission & decoding MNIST image dataset containing 70,000 28x28 images
- Chose **AutoEncoders** over Huffman Coding to save computations & Obtained **95% reduction in memory**
- Generated a new image dataset from the MNIST dataset using **Generative Adversarial Networks (GANs)**

Exoplanet Transit : Light Curve Simulation with Manim | Team Anymation *(Apr 2024-Jun 2024)*

- Estimated the intensity on the screen by creating a detailed mesh-grid statically utilizing all the points
- Worked on **Manim library** and integrated with LaTeXto incorporate mathematical equations into visuals
- Used constructors to create diverse scenes, adjusting screen brightness for a **realistic transit experience**
- Developed an intensity graph that updates continuously to depict changes during the transit simulation
- Also simulated the Brightness reduction as the **exoplanet projection** on the screen enlarges by various factors

Probability Theory : Learning Project | Summer Of Science 2024 *(May 2024-Jul 2024)*

Maths & Physics Club IIT Bombay | Mentor: Mr. Adway Girish

- Covered Conditional Probabilities & switched to **Bayesian Models** for estimating prior & posterior distributions
- Learnt Various Distributions and explored the application Gaussian Kernels in Increasing the Feature Dimensions
- Researched upon Risk Minimization & gained depth knowledge on Convergence & **Fundamental Theory of PAC**

Academic Projects

Cavitation in Centrifugal Pumps | EN 222 Fluids Mechanics & Heat Transfer *(Apr 2024-Jun 2024)*
Course Project | Guide: Prof. Manaswita Bose, Department of Energy Science & Engineering

- Explored **bubble dynamics** to understand cavitation, including microjet formation generating shock waves
- Tuned different parameter & keep track of Total Head, Vapour Pressure to avoid cavitation in Centrifugal Pump
- Derived the **NPSHA** using Bernoulli & Darcy Weisbach Equations & the limitation in deriving **NPSHR**
- Compared the relation between NPSHA and various primary parameters such as Temperature, Vapour Pressure

Developing Mechanically Controlled Flaps | DE 250 Design Thinking & Innovation *(Jan 2024-Apr 2024)*
Instructor: Prof. Nishant Sharma, Industrial Design Centre

- Dived into Design and Scenario-Making Aspects for Innovation. And performed indepth-research on the topic "Seamless Campus Travel for Students with Special Needs". Tried to combine user experience & user outputs
- Figured out **key insights**, identified desired user experience, and impediments to analyze the problem
- Moved forward towards action and Innovation of the product using different techniques such as **SCAMPER**
- Came up with a solution by developing new sports equipment named 'MobilityX' for specially-abled students
- Developed CAD model of mechanically controlled flaps, simulating **lever movement** dynamics with Fusion 360

Presentation of a Research Paper | EN 102 Energy Engineering Fundamentals *(May 2023)*
Course Project | Guide: Prof. Shireesh B. Kedare, Department of Energy Science & Engineering

- Conducted research on the costs and potential of different measures, based on the research paper **"A cost curve for greenhouse gas reduction"** published in McKinsey Quarterly by Per-Anders Enkvist
- Analyzed strategies outlined in the paper to assess economic viability and environmental impact comprehensively
- Minimized slope in the **cost curve** by ascertaining several effective methods of **potential abatements**
- Presented implications of a research paper, showcasing strong communication and presentation skills

Designing a Cascading Refrigeration Cycle *(Nov 2023-Dec 2023)*
EN203 Course Project | Guide: Prof. Ashish Sarangi, Department of Energy Science & Engineering

- Developed a cascading refrigeration system balancing very low and moderately low temperatures
- Conducted analyses to select appropriate refrigerants and determine critical temperatures for optimal performance
- Designed heat exchangers tailored to each stage of the cycle, focusing on maximizing heat transfer efficiency
- Achieved optimal system performance, calculating the mass flow rates, heat removal rates, and Coefficient of Performance for both two-stage and single-stage cycles with non-isentropic compressors

Position Of Responsibility

Team ANYmation | Member Of Theory Subsystem *(Feb 2024-Present)*

- Familiar with **Blender Python** scripting, focusing on **2-body simulations and Wrecking-Brick** wall animations
- Proficient in using Blender for scripting simulations and animations, enhancing Python and 3D animation skills
- Emphasized scientifically accurate animations by understanding systems and their mathematical foundations
- Collaborated with Theory subsystem members to complete a project simulating the transit of an exoplanet

Key Courses Undertaken

Data Science & MachineLearning	Linear Algebra, Differential Equations, AI & Data Science, Intro to Machine Learning, Optimization
Computer Science & Mathematics	Computer Programming & Utilization, Calculus I, Calculus II, Logic for Computer Science

Technical Skills

- **Programming Languages**: C++ | Python | HTML | CSS | SQL
- **Libraries**: Numpy | Matplotlib | Pandas | scipy | Tensorflow | Manim | OpenCV | Pillow
- **Softwares & Packages**: Fusion 360 | LaTeX | Fractory | MSExcel | Blender | PowerBI

Certifications

- Data Science for Python *(Learner Space IIT Bombay 2023)*
- Front-End Web Development using HTML, CSS & Java *(Coursera)*
- Data Structures & Algorithms *(Udemy)*

Extra-Curriculars

Tennis	• Secured **3rd place** in Sports General Championship (Inter-Hostel Competition) Tennis *(Feb 2024)* • Reached Quarterfinals in **Racketlon Sports Competition**, playing Tennis & Badminton *(Apr 2023)* • Completed a 1 year long session National Sports Organisation in Lawn Tennis *(2022)*
Culturals	• Participated in **Gyrations** an Inter-Hostel Dance Competition in General Championship *(Oct-2024)* • Performed in Annual Insync Dance Show for Fresher's Performance at the Institute *(Apr 2022)* • Recognized for vocal excellence with 3rd place in a Singing Competition conducted in school *(2017)*
Others	• Built a start-up model from scratch for Startup & Pitching Competition, **EnBuzz ECell** *(Nov-2022)* • Constructed remote-controlled vehicle in **XLR8** conducted by E&R Club *(Jan 2023)* • Performed Equity Research Analysis on **PFC**, event conducted by Finance Club *(Aug 2023)*