Abhijeet Prasad Bodas
Mechanical Engineering
Indian Institute of Technology, Bombay

190100004
B.Tech.
Gender: Male
DOB: 28-05-2001

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2023	

Pursuing a **Minor** degree in **Computer Science and Engineering** at IIT Bombay

Academic Achievements

- Secured All India Rank **628** in JEE Advanced and **99.84%** percentile in the JEE Mains examination [2019]
- Recipient of the **KVPY** scholarship after securing All India Rank of **717** among **1 lakh+** candidates [2019]
- Among the **top 2 students in Mumbai** region in **HSC** class 12th board exams in **science** stream [2019]

Work Experience

Student Developer | Google Summer of Code [May - August 2021]

The Zulip project: powerful, open-source group chat application with first-class threading

- Worked on a **Django/Tornado** stack, writing clean, maintainable code with **unit and integration tests**
- Utilized **PostgreSQL** features like **row-level locks** and database **transactions** for **concurrency control**
- Developed the **mute users** feature, which was a **key highlight** in the Zulip 4.0 release announcement
- Rewrote the email notifications event **queue processor** to be **lossless** by using persistent database storage
- Refactored various areas to improve **codebase quality** while ensuring **backwards compatibility** of API

Key Projects

Parallelized QR Matrix Factorization [April - May 2021]

Course project: High performance scientific computing | Guide: Prof. Shivasubramanian Gopalakrishnan

- Implemented the **Modified Gram Schmidt** and **Householder** matrix factorization algorithms in **C++**
- Parallelized the algorithms using **OpenMP** library as well as the **GPU** based **Nvidia CUDA** platform
- Performed a **time study** to analyze the effects of the matrix **size** and the number of parallel **threads** on the program's execution time. Achieved an up to **60%** speedup as compared to the serial implementation

Comparative Study of Image Compression Techniques [March - May 2021]

Course project: Introduction to Machine Learning | Guide: Prof. Biplab Banerjee

- Utilized **Scikit-learn** library for **Principal Component Analysis** using **Singular Value Decomposition**
- Obtained a **PSNR** value of **24** and a **62.5%** theoretical reduction in image size using **150** components
- **Compared** the results with a 60 points **K-means** implementation and a **GAN** based **deep learning** model

Git Contribution CLI [September 2020]

Hobby project | Create GitHub profile-like heatmap graphs for local repositories

- Developed a **command-line interface** to generate contribution graphs using **Go programming language**
- Scanned for **.git** files to detect repositories in all **sub-folders** of a given directory path using **recursion**
- Utilized the **go-git package** to find commits authored by a given **email** to generate the **heat-map** graph

Positions of Responsibility

Web Convener | Undergraduate Academic Council | IIT Bombay [April 2020 - May 2021]

- Responsible for **upgrading and maintaining** existing web pages of the council and **building** new ones
- Developed the course ranking portal, **Credit** for writing course reviews, and implemented features such as **up-vote** review, **admin** moderation of reviews, and **SSO (OAuth2)** login using the **Django** web framework
- Revamped portals for **Learnerspace** and **iSURP** programs, which saw a **400%** YOY increase in registrations

Extracurricular Activities

- Secured **2nd position** in Shell Energy Day brainstorming competition among **10+** participant teams [2019]
- Achieved a **perfect score** in the Maths and Physics **General Championship** SciComp at IITB [2020]
- Completed **year-long** training in **tabla** instrument playing as part of **NSO** in the freshman year [2019 - 20]