Vyankatesh Sawalapurkar
Mechanical Engineering
Indian Institute of Technology Bombay

170100034
UG Third Year (B.Tech.)
Male
DOB: 21/09/1999

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2020	8.88
Intermediate/+2	Maharashtra HSC Board	Shri. Dawale Jr College, Akola	2017	90.92
Matriculation	Central Board of Secondary Education	Jawahar Navodaya Vidyalaya, Amaravati	2015	10.00

KEY ACHIEVEMENTS

- Awarded **Technical Freshman of the Year, IIT Bombay** for exemplary technical performance *[2017-18]*
- Secured **All India Rank 723** in JEE Advanced 2017 among 1.6 lakh candidates *[2017]*
- Achieved **99.7 percentile** in JEE Mains 2017 among 12 lakh candidates *[2017]*
- Awarded **INSPIRE** award for being in the top 1 percent of HSC Board Examination, Maharashtra *[2017]*
- Pursuing a minor in **Computer Science and Engineering** *[2018-present]*

INTERNSHIP AND TECHNICAL PROJECTS

Indian Infoline – IIFL | *Summer Intern* *[May'19-Jul'19]*

Part of the Android Development team

- Conceptualized, Designed and Developed an android **Wear watch** app which displays the current stock prices of user-specific companies and has integrated **speech-to-text** searching assistant
- Using the latest Google API's established the connection between watch application and existing 5Paisa mobile application so that user can log in and logout to the watch app through the mobile app
- Designed separate UIs for both round and square wear watches and implemented dynamic image and text sizing so that app can work properly on multiple devices
- Developed a proof-of-concept for a feature **APP INBOX** using a mobile marketing platform CleverTap

Autonomous Underwater Vehicle | *Team AUV-IITB* *[Sep'17-Present]*

RoboSub, AUVSI & US Office of Naval Research *San Diego, CA*

*Designed & developed state-of-the-art unmanned Autonomous Underwater Vehicle with an overall budget of **4 million INR** capable of localizing itself, performing realistic naval missions using visual, inertial, acoustic & depth sensors, thrusters & pneumatics for actuation*

National Winner of Student AUV Competition, **SAVe 2019**, conducted by the National Institute of Ocean Technology

Chief Mechanical Designer

- Ideated and designed **end effector (gripper)** and **mounting assembly** to integrate it with arm of Matsya 5.0
- **Optimised gripping area** of gripper by performing various iterations in the design using **SolidWorks**
- Designed assembly parts for mounting SONAR on Matsya 5.0 and also simulated the stability of the AUV after SONAR mounting using **Finite Element Analysis** on ANSYS to ensure the reliability of the structure
- Performed the **Static Structural Analysis** of the main hull of Matsya 5.0 on ANSYS

Fabrication Engineer

- Executed the manufacturing of vehicle components using Industrial level processes such as Waterjet Cutting, **Vacuum Impregnation**, Welding, CNC Milling, and Lathe
- Manufactured the gripper via the process of **3D printing** using TPU, providing flexibility to the gripper

Institute Technical Summer Project | *Stone Paper Scissor Champion* *[Jun'18]*

- Developed a computer program which can always beat a human at the game of stone-paper-scissor by predicting the opponents move using **Image Processing**
- Wrote code to perform gesture recognition using **OpenCV-Python** library
- Extracted the image of hand from camera image using **motion detection** (by background subtraction)

Thermocouple Integrated Soldering Iron | *Course Project* *[Mar'19]*

Guide: Prof Atul Shrivastava (ME)

- Integrated K-type thermocouple with soldering iron to measure its temperature.
- Designed an electrical circuit using Arduino to cut off the power supply of soldering iron when its temperature reaches the melting temperature of the base material
- Wrote code for displaying the temperature of soldering iron on an LCD screen.

Hand Operated Water Lifting Device | *National Service Scheme* *[Aug'17 -Apr'18]*

- Cleared the selection test for NIC (National Innovation Club) department of NSS, IIT Bombay
- Successfully completed the **SolidWorks model** of hand-operated water lifting device which was presented at the Festival of Innovation and Entrepreneurship, 2018 at the **Rashtrapati Bhavan**
- Learned about various types of **water lifting mechanisms** and finalized the most useful mechanism for our requirement after a detailed analysis of mechanisms

POSITION OF RESPONSIBILITY

Web Secretary | *Mechanical Department* *[Aug'18-May'19]*

Responsible for the management of the website for the Mechanical Engineering Department of IIT Bombay

- Improved the design and architecture of the department website using **Django framework**, CSS, and HTML
- Along with a council of 15 members, organized department events such as Orientation of First-year students (Mechanical Engineering), Department Convocation and Department Kurta day

Mechanical Subdivision Leader | *AUV-IITB* *[May'19-present]*

- Planning **budget** & **work distribution** of the subdivision leading 10 junior design engineers
- Heading the design of Autonomous Underwater Vehicle, Matsya 6.
- Represented the team and college at International Robosub Competition 2019 in **San Diego, CA**

Mentor at XLR8 | *Electronics and Robotics Club* *[Aug'18-Sep'18]*

- Mentored two teams in the completion of their Remote-Controlled car for the XLR8 competition
- Helped freshmen to understand the functions of the various electrical component as well as different mechanical aspects of a remote-controlled bot

TECHNICAL SKILLS

Software: Android Studio, ANSYS (Static Structural), SolidWorks, AutoCAD
Programming languages: C/C++, Python, Java, HTML, CSS

EXTRA-CURRICULAR ACTIVITIES

Workshops and Events

- Attended a workshop on **Android development** conducted by Web and Coding Club, IIT Bombay *[Jan'18]*
- Participated and completed **Web-Development** and **Python** bootcamps organized by the Career Cell division of Undergraduate Academic Council, IIT Bombay *[June'18]*
- Participated in the regional **science congress** held at JNV Canacona (Goa) as a **student representative** of JNV Amaravati and presented a science model on an irrigation system, participated in different scientific activities and visited places of scientific importance such as the **Kaiga atomic power plant** *[Nov'13]*

Sports

- Represented Pune region of Navodaya Vidyalaya Samiti in **Chess national** for 3 consecutive years. Secured 2nd position in the year 2012 among 8 regions of Navodaya Vidyalaya Samiti *[2012-2014]*
- Represented hostel in Chess General Championship at IIT Bombay *[Autumn'17]*

Miscellaneous

- Dedicated **80 hours of social service** as a volunteer of the **National Service Scheme (NSS)**, IIT Bombay by working on a Hand Operated Water Lifting Device to help poor people with the problem of waterlogging
- On behalf of team AUV-IITB, explained the working of our Autonomous Underwater Vehicle to various technocrats at Tech-Connect organized at **TechFest** (Asia's largest college technical festival) *[Dec'17]*

KEY COURSES UNDERTAKEN

Mathematics	Calculus, Ordinary Differential Equations, Linear Algebra, Introduction to Numerical Analysis
Computer Science	Computer Programming and Utilization, Data Structure and Algorithms, Operating Systems, Computer Graphics*, Deep Learning*
Core Courses	Thermodynamics, Fluid Mechanics, Solid Mechanics, Microprocessors and Automatic Control*, Introduction to Electrical and Electronic Circuits, Mechanical Measurements, Strength of Materials, Heat Transfer*

*To be completed by November 2019