Shaurya Sarna | **170100040**
Mechanical Engineering | **B.Tech.**
Indian Institute of Technology, Bombay | **Gender: Male**
DOB: 10-06-1999

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2021	
Intermediate	Central Board of Secondary Education	B.V.B. Vidyashram	2017	97.00%
Matriculation	Central Board of Secondary Education	B.V.B. Vidyashram	2015	10

*Pursuing a **minor degree** in Department of **Computer Science and Engineering***

WORK EXPERIEINCE

Uton Energia | Mechatronics Intern [May'20-July'20]

- Designed, analyzed and achieved target weight of **3 kg** in **Rim** for electric two wheeler application
- Ideated a **semi-automatic keyless** method to lock the two wheeler using mobile application
- Developed accurate **3D CAD model** of commercial battery pack requiring single prototype before production
- Worked on **swapping system** for battery pack and a locking mechanism for battery compartment
- Designed power transmission and mounting of BLDC motor, achieving load compliance in single iteration

IIT BOMBAY RACING

Faculty Advisor: Prof. Amber Shrivastava, Department of Mechanical Engineering, IIT Bombay
*A cross functional team of students aimed at designing and fabricating electric race cars for the **Formula Student** international design competition held by **IMechE** annually at the Silverstone Circuit, UK.*

Team Leader [June'20-Present]

Secured **1st** position out of 73 teams at FSUK 2020 design event, **first Indian team** to achieve this

- Leading a 3 tier team of **70+ students** working in technical and organizational subsystems
- Responsible for setting targets, goals and timelines; planning major technical steps and innovations
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- Employing Gantt Charts and PLM softwares in team for optimized product development process
- Revamping the work policies and methodologies to function in a completely **remote environment**
- Serving as **Point of Contact** for interactions of team with University Management, Sponsors and Alumni
- Accountable for static events (Cost Report and Engineering Design) accounting for **28% points**
- Working on **cost analysis** of prototype with thorough understanding of the manufacturing of 200+ parts and explaining material and process selections, make or buy decisions, and sustainability analysis

Design Engineer - Electromechanical Assembly [May'19-May'20]

- Designed and fabricated a **400V** accumulator container through 4 iterative design implementations consisting of 96 lithium-ion pouch cells having energy capacity of **7.8kWh** with over **750 parts**
- Implemented **Busbar cell connection PCB** that eliminates requirement of wires for battery management system, improves cooling efficiency by **10%** and decreasing module assembly time by **36%**
- Collaborated with **FirePro** to design **India's first** electric vehicle with **fire suppression system**
- Validated load bearing capabilities of accumulator mounts and cell modules using Ansys to ensure safety
- Incorporated snap mounts that reduced assembly time of electronic components and PCBs by **40%**
- Manufactured CFRP sandwiched **Kevlar** accumulator container infused with fire retardant resin
- Mentored 12 freshmen to impart basic knowledge of race car engineering as a part of their training

Junior Design Engineer - Electromechanical Assembly [August'18-April'19]

- Selected as part of 30 member contingent to represent team at Formula Student UK 2019 competition
- Integrated cooling system in battery and researched on **Peltier** and **Ram Air** cooling methods
- Researched and incorporated materials to increase the Fire Retardant properties of accumulator to 100%
- Exhibited the car at the **Autocar Performance Show** 2018 to leading automobile industrialists

KEY PROJECTS

Gear Metrology - Course Project [July'19-November'19]

Guide: Prof. Amber Shrivastava, Department of Mechanical Engineering

- Used a self developed model to measure and control RPM of gear attached to a DC motor
- Employed **Optex CD22** optical sensor to replicate the profile of a sample gear on MATLAB

Analysis of Microgripper - Course Project [July'19-November'19]

Guide: Prof. Pradeep Dixit, Department of Mechanical Engineering

- Learned about various aspects involved in design and manufacturing of microgrippers
- Simulated a **self designed microgripper** on Ansys having real time parameters for electro-mechanical relationships to check structural integrity of microstructure on applying various loads

Feature Extraction - Digital Holography - Course Project [July'19-November'19]

Guide: Prof. Atul Srivastava, Department of Mechanical Engineering

- Employed reflection holography to acquire the image of coin for extracting surface features
- Utilized Sommerfeld equations to extract features out of recorded hologram and replicate surface profile

Attendance Recording Bot With Face Recognition – ITSP [June'18]

- Built a remote controlled device that marks the attendance of students using **face recognition**
- Designed and manufactured the base of bot and mechanism for motion of camera
- Supported the development of android applications to control the bot and record the attendance

AWARDS AND ACHIEVEMENTS

- Stood **10th** out of a batch of **125** students in Mechanical Engineering department ['20]
- Received **Institute Technical Special Mention** for contribution to IIT Bombay's technical culture ['20]
- Awarded **Academic Proficiency** in Mechanical Measurements course given to **1 out of 168** students ['19]
- Stood **7th** all over India in Nationwide Education Scholarship Test by SEMC Mumbai ['17]
- Secured **International Rank 14th** in International Mathematics Olympiad and **International Rank 24th** in National Science Olympiad organised by the Science Olympiad Foundation ['17]
- Awarded **High Distinction** in Senior Division in Australian National Chemistry Quiz ['16]
- Recipient of prestigious **Kishore Vaigyanik Protsahan Yojana** Fellowship ['15]
- Qualified for **National Talent Search Examination** scholarship organised by NCERT ['15]
- Recipient of **Kulpati K.M. Munshi Award** in Mathematics ['15]

POSITIONS OF RESPONSIBILITY

Coordinator at Hospitality and Public Relations, Mood Indigo [July'18-December'18]

Asia's largest college festival | 143,000+ Footfall | 230+ Events

- Facilitated hospitality and assistance of **800+** contingents, **0.1 million+** visitors from across **1700+** colleges and **200+** international artists from **18** countries with a team of 50+ members
- Devised a new publicity strategy by introducing first ever pan-Mumbai Contingent Leader Meet inviting **100+** colleges to boost incentivized participation from unexplored talent
- Automated the accommodation process which speeded up the room allotment by **60%**
- Managed **20+** college representatives from all across the country to coordinate with various teams and publicize the events, launches and competitions to help expand the outreach of Mood Indigo

Class Representative - Mechanical Engineering Department [July'18-June'20]

- Entrusted with coordinating a batch of **150+ students** and helping professors with administration
- Played an active role in scheduling seminars, labs, quizzes, and field trips during the semester

EXTRA CURRICULAR ACTIVITIES

Tech	• Completed a feasibility study on Solar Electric Vehicles under **Tesla EV Academy**	['20]
	• Completed training for core level Python programming and Android App Development	['18]
	• Designed working prototype of Remote Controlled Plane during RC plane competition	['17]
Social Work	• Volunteered for a free medical camp for the children of Jaipur open jail inmates and provided recreational facilities to their school in association with NGO Shilpayan	['16]
	• Gave services and expertise at a bird treatment camp during the kite festival in association with the "Environment and Wildlife Care Society, Jaipur"	['16]
Sports	• Participated in Advanced Level Summer Camp in lawn tennis	['18]
	• Selected and professionally trained in lawn tennis for a year under NSO program	['17]
	• Stood first at inter-house lawn tennis tournament in junior boys category	['13]
	• Stood second at First District Level Higher Secondary Lawn Tennis Tournament	['12]
Misc.	• Won digital round in Yono Quiz on general knowledge organized by State Bank of India	['19]

TECHNICAL SKILLS

Programming C, C++, Python, Arduino, MATLAB

Software AutoCAD, SolidWorks, Ansys Structural, Android Studio, ADAMS, MS Project