Harsh Chandak
Mechanical Engineering
Indian Institute of Technology Bombay
Specialization: Computer Aided Design and Automation

150040016
Dual Degree (B.Tech+M.Tech.)
Male
DOB: 20/03/1997

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2020	8.40

Pursuing **Minor** in **Computer Science and Engineering** and **Honors** in **Mechanical Engineering**

SCHOLASTIC ACHIEVEMENTS

· Awarded **Branch Change** after first year (89 out of 905) | Conferred the **KVPY** Fellowship Award by Govt. of India
· Awarded the **INSPIRE scholarship** by Govt. of India | Sate wise **Top 1**% in National Standard Exam in Physics
· Secured **99.7 percentile** in JEE Main (out of 1.3 million) | **International Rank 150** in Int'l. Maths Olympiad(SOF)

WORK EXPERIENCE

General Electric (GE) | *World Rank 21 - Fortune 500 Rankings 2019*   *(May'18 - Jul'18)*
Part Classification using Python | *GE Aviation*   *JFWTC, Bangalore*
· Built various utilities in **Siemens NX** using **Python** and **NXOpen** to automatize the desired functionality
· Executed **text mining** (extraction and analytics) on the data obtained from part files of various engine parts
· Performed operations on the derived information to classify the numerous engine parts into different part families
· Explored the option of using Python with Siemens NX and compared its performance with the existing C# utilities

INTERNATIONAL EXPOSURE

ETH Zürich | *World Rank 6 - QS World University Rankings 2020 | Semester Exchange student*   *(Spring '19)*
· **1 of the 2 students from India** (in engineering) to be selected for a semester exchange to ETH Zürich
· Awarded **scholarships** by **Heyning-Roelli Foundation** and ETH Zürich for exchange study in Switzerland

KEY PROJECTS

Natural Language Processing | Research Project   *(Nov '18 - Dec '18)*
· Learned techniques such as **Stemming**, **Lemmatization**, **N-grams**, **Bag of words** and **TF-IDF values**
· Performed **sentiment analysis** on the **IMDb** movie review dataset and acquired basic knowledge of **RNN** & **LSTM**

Blockchain its impacts in the world of cybersecurity and finance   *(Nov'17 - Apr'18)*
*Manch: a collaboration between **Deutsche Bank** and **Gender Cell, IIT Bombay***   *IIT Bombay*
· Successfully completed and presented the project to a panel of judges from DB, **awarded for active participation**
· Attended workshops on basics of finance, interviewing skills and presentation skills as a part of the Manch program

Development of Deep Learning models for video surveillance | **Dual Degree Project**   *(Jul'19 - present)*
· Developing efficient inference models of DL for execution on **Edge Computing** devices **NCS2** & **NVIDIA Jetson**
· Combining image processing techniques like **HOG**, **Morphological Transformations**, **Canny Edge detection**, etc. with Deep Learning techniques to develop a video surveillance system

Parallel finite-difference solver for the wave equation | Course Project   *(Jan'18 - May'18)*
· Devised **finite-difference** based algorithm to solve linear partial differential equation in one variable (wave equation)
· Parallelized the algorithm using **MPI**, **CUDA** & **OpenCL** to decrease the execution time of the code

Gutter Cleaner | *Machine Design | Course Project | Team of 5 members*   *(Jul '18 - Nov '18)*
· Identified the problem of manual scavenging and sewage cleaning in India **(1 death every 5 days)**
· Designed a model of the device in **Solidworks** | Derived equations of motion | Manufactured a **working prototype**
· Working in collaboration with **IRCC**, **R&D office** to **patent** the device | Presented the device at a Project Exhibition

Modification in Bruting Process of Diamond | **Hari Krishna Exports, Surat** | Course Project *(Jul'18 - Nov'18)*
· Overviewed the complete **manufacturing process of diamond** at HK Exports and identified the **bottleneck**
· Designed a **CAD model** suggesting modifications in the bruting process which reduced the processing time by **33%**

POSITIONS OF RESPONSIBILITY

Institute Student Mentor (ISMP) | *Student Mentor Program, IIT Bombay*   *(Apr '19 - present)*
· Selected based on overall performance via a rigorous procedure of SOP, interview and peer reviews **(1 of 108/300)**
· **Guiding** and **mentoring 12 freshmen**, providing them counsel and helping them adjust to campus life

Mentor | *Department Academic Mentorship Program (DAMP), IIT Bombay*   *(Apr '19 - present)*
· Selected in a team of **33 out of 95+ applicants** and we currently **mentor 185 students** in their academic concerns

Teaching Assistant | CE 102 - Engineering Mechanics | ME 201 - Solid Mechanics   *(Spring '17,'18, Autumn '19)*
· Designing problem set, solutions for the tutorial | Supervising the tutorial sessions | Conducting extra **help sessions**

TECHNICAL SKILLS

Programming Skills:	C++, Python, C, PyTorch, Tensorflow, Jupyter Notebooks, Pandas, NumPy
Software Skills:	SolidWorks, Siemens NX, AutoCAD, ADAMS, MATLAB, Git, LaTeX