



**Ritwik Raj**  
**Mechanical Engineering**  
**Indian Institute of Technology Bombay**  
**Specialization: None**

**110100044**  
**UG Third Year (B.Tech.)**  
**Male**  
**DOB: 22/12/1993**

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2014	8.34
Intermediate/+2	Central Board of Secondary Education	Delhi Public School, Bokaro	2010	91.60
Matriculation	Central Board of Secondary Education	Jawahar Navodaya Vidyalaya, Sitamarhi	2008	94.00

### Academic Achievements

- Secured All India Rank 2453 in IIT-JEE (Indian Institute of Technology-Joint Entrance Examination) [2011]
- Got **AP** grade (Advanced Performer) in Solid Mechanics, given to only 3 students in a class of 168 students [2012]
- Pursuing **Minor** degree in **Electrical Engineering**
- Scored A1 grade in all the subjects in CBSE 10<sup>th</sup> and 12<sup>th</sup> board examination
- Was awarded 0.1 Certificate in English for being in top 0.1% students of the total successful students in All India Secondary School Examination [2008]
- Recipient of Merit cum Means Scholarship from IIT Bombay for excellence in academics

### Projects Undertaken

#### Development of novel membrane deflection experiment [Ongoing]

Under **Prof. Krishna N. Jonnalagadda**, Mechanical Engineering Department, IIT Bombay

- The aim of this project is to study the behaviour of thin polymer films under biaxial loading for small and large loads to obtain their mechanical properties
- As of now, bulge test setup (which would be used to provide deflection to the film) has been designed and currently, its fabrication is in process
- Results obtained for bulge test experiment would be then compared with the results that had been obtained using indentation loading technique

#### Modelling and simulation of the Carrom (strike and pocket) game using MATLAB [Ongoing]

Under **Prof. Salil S. Kulkarni**, Mechanical Engineering Department, IIT Bombay

- Studied the physics behind this game and established the equations of motions and collisions between the coins
- Using these equations, it has been planned to implement computationally efficient algorithms in MATLAB to keep track of all the coins and to detect collisions

#### Shopkeeper user interface using VB 6.0 and SQL [2010]

Under **Mr. Ranjeet Kumar**, Senior Faculty, DPS Bokaro

- Made a user interface for shopkeepers to keep track of all purchases from their shops
- User interface part was developed in **Visual Basic 6.0** and was synchronised with **SQL** for database

### Software Skills

- Languages:** C++, Visual Basic 6.0, SQL

- **Operating System:** Windows, Ubuntu
- **Tools:** Abaqus, SolidWorks, Sony Vegas, Adobe Photoshop, MATLAB, MS Office

## Course Projects

### Thermal modelling of laser surface cladding [2013]

Under **Prof. Ramesh Singh**, Mechanical Engineering Department, IIT Bombay

- Worked on modelling and analysis of powder injection laser cladding technique of Ti-Co mixture using Ti alloy as substrate (ABAQUS platform was used for the analysis part)

### Analysis of LTI systems using MATLAB [2012]

Under **Prof. Arjun Arunachalam**, Electrical Engineering Department, IIT Bombay

- Worked on a project on analysing the discrete time and continuous time signals and studied the behaviour of signals in different linear time invariant systems using MATLAB platform

### Practical applications of defects in solid crystals [2012]

Under **Prof. B.P. Kashyap**, MEMS Department, IIT Bombay

- Investigated the effects and applications of defects in different solids and change in their behaviour with the change in physical and chemical properties

## Position of Responsibility

### Co-ordinator: Techfest 2013 [2012-2013]

- Was co-ordinator of the events Robowars, Techfest National Open Quiz and Ideate in the annual science and technology festival of IIT Bombay, **Techfest**

### Co-ordinator: Mood Indigo 2012 [2012]

- Was co-ordinator of the events Picture Scramble and Street Racing of Informals Department in the annual cultural festival of IIT Bombay, **Mood Indigo**

## Co-curricular Activities and Achievements

### Sports

- Represented my hostel in Inter Hostel General Championship in Table Tennis and Sophomore Hockey [2012]
- Represented my school in Cluster Level Games and Sports Meet (Patna Region) in Table Tennis [2006]

### Fine Arts

- Represented my school in Cluster Level Landscape Painting Competition [2007]
- Was awarded **A grade** certificate for outstanding performance in Painting Contest organised by Centre for Indian Art Resources and Training [2006]
- Won 1<sup>st</sup> prize in Inter Hostel Scientist Portrait Making Competition [2005]
- Attended a month long Fine Arts Workshop conducted by professionals and learnt various genres of fine arts such as Portrait Making, Sculpture Making, etc. [2004]

### Miscellaneous

- Participated in 'The Sahara Force India Pit Stop Challenge' at Mood Indigo'13 [2013]
- Represented IIT Bombay in **Limca Book of Records** for solving Rubik's Cube successfully in the given time along with 936 students [2012]
- Won 3<sup>rd</sup> prize in Inter Hostel Quiz Contest [2006]