



**Akshay Batwara**  
**Aerospace Engineering**  
**Indian Institute of Technology, Bombay**

**09D01016**  
**UG Third Year(Dual Degree )**  
**Male**  
**DOB: Jan 16 ,1992**

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2011	8.77
Intermediate/+2	CBSE	Maheshwari Public School,Jaipur	2009	92.40
Matriculation	CBSE	Maheshwari Public School,Jaipur	2007	91.80

#### SCHOLASTIC ACHIEVEMENT

- **Department Rank 1** in Aerospace Engineering (Dual Degree) Department
- Recipient of the prestigious **National Talent Search Scholarship** conferred by Govt. of India
- Qualified ( among top 1%) **National Standard Examination in Physics'07** (Physics Olympiad level I)
- Qualified( among top 1%) **National Standard Examination in Chemistry'07** (Chemistry Olympiad level I)
- Among top 100 in **National Science Talent Search Examination '08**
- Qualified for interview in **Kishore Vaigyanik Protsahan Yojana'07** (KYPY)

#### RESEARCH WORK

- **Large Eddy Simulation Of Shock –Turbulence Interaction**
  - Under the guidance of Prof. Krishnendu Sinha
  - Studied different models and their effect on turbulence field and analyzed pros and cons of many functional , structural and dynamic models
- **Analytical Study of Shock-Turbulence Interaction**
  - Under the guidance of Prof. Krishnendu Sinha
  - Analyzed the effect of upstream fluid fluctuation (of different asymptotic levels ) on unsteady oblique shock and developed transport equation for vorticity fluctuations
- **Modeling shock unsteadiness in shock-turbulence interaction**
  - Under the guidance of Prof. Krishnendu Sinha
  - Simulated the supersonic turbulent flow in proximity of shock using hybrid approach (of analytical and Large Eddy Simulation ) and develop a model for the same by analyzing Energy Budget and comparing it with existing functional and structural models
- **Study of Compact Linear Fresnel Reflector**
  - Under the guidance of Prof P.M. Mujumadar
  - Ongoing as a supervised learning project
  - Optical ,Structural and Computational analysis of Compact Linear Fresnel Reflector and optimizing it for maximum output and for minimized input

#### ACADEMIC PROJECTS

- **Design of mobile thermal comfort for people**
  - Conceptually designed suit providing mobile thermal comfort for people living in hot and humid places.
- **Fingerprint registration and recognition software**
  - Image Processing and elaborate data analysis and handling using C++ was done under supervision of Prof .D.B. Phatak.
  - Included Fingerprinting data collection and verification

## TECHNICAL PROJECTS

- Took Part in F1 Car Competition (stood 13th among 90 teams participating ) and made Wireless Racing Car which uses RF circuits and some basic concepts of electronics.
- Made powered remote controlled aircraft from balsa wood
- Built a non-powered aircraft (Chuck Glider) using balsa wood
- Participant of Boomerang making competition conducted in Zephyr 2009

## PROFESSIONAL SKILLS

- **Programming Languages**
  - C/C++, Python , FORTRAN
- **Softwares**
  - **Computer Algebra Softwares:** Maple, Mathematica, Maxima
  - **Technical Computational Software:** Matlab (& Simulink), Scilab, Pylab, Ansys, Fluent, Gambit, Solidworks, Gridgen, Labview
  - **Plotting Software:** TecPlot, GraphThing, LiveGraph
  - **Other Packages:** LaTeX, MS-Office, OpenOffice, Adobe Photoshop, Adobe Dreamweaver
- **Operating Systems :** Windows 7/Vista/Xp ; Ubuntu & Fedora

## RELEVANT COURSES

- **Specialised Courses:** Aerodynamics, Propulsion , Computing Of High Speed Flow ,Heat Transfer, Computational Fluid Dynamics
- **Core Courses:** Engineering Design, Fluid Mechanics, Thermodynamics, Introduction to Flight Mechanics, Solid Mechanics, Aerospace Structural Mechanics, Control Theory
- **Other Important Courses:** Integral Calculus, Differential Equations, Linear Algebra, Introduction to Numerical Analysis, Computer Programming and Utilization, Overview Of Macro and Micro Economics, Data Analysis And Interpretation
- **Lab Courses:** Aerospace Measurement Laboratory, Modelling and Simulation Laboratory, Experimentation and Measurement Labs, Engineering Graphics and Machine Drawing, Aircraft Structures Laboratory, Control Systems Laboratory

## POSITION OF RESPONSIBILITY

- **Council Member** of Aerospace Engineering Association, IIT Bombay
- **Manager ( Events)** of Zephyr'12
- **Department Academic Mentor (D-AMP)**
  - Mentoring 6 undergraduate students; providing necessary academic guidance and helping them in their stay at IIT Bombay
  - Liaising between faculty advisors and respective batches providing feedback and recommendations

## EXTRA-CURRICULAR ACTIVITIES

- Was member of National Service Scheme for a year and Twice went for rural trip under Group Of Rural Activity program
- Awarded **PAF Color** (2011) for exemplary contribution to Performing Art Festival of IIT-B
- Important member of Prod and Fine-Art(FA) teams in PAF'11 which secured 1<sup>st</sup> position
- **Freshie Special Mention** in the Performing Arts Festival (**PAF**)'09 the **Cultural festival** of IIT Bombay
- **Coordinator** in Techfest '11