

# Chandra Bhushan Singh

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C-303, RP Hall of Residence  
IIT Kharagpur  
Kharagpur -721302, India

Phone: (0091) 99329 00876  
E-mail: cbsingh05iitkgp@gmail.com  
Web: [http://www.freewebs.com/cbsingh05\\_iitkgp/](http://www.freewebs.com/cbsingh05_iitkgp/)

## OBJECTIVE

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To procure a summer internship in an establishment in the field of Aerospace discipline which could provide me with a stimulating work environment and afford me opportunity to continuously learn and develop new perspective.

## EDUCATION

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Year	Degree	Institute	Board	Subjects/Specialization	Result	Rank
2008	B Tech	Indian Institute of Technology, Kharagpur	IIT	Aerospace Engineering	8.06/10	6/32
2004	Class 12 <sup>th</sup>	Chinmaya Vidyalaya, Bokaro	AISSE.	Math, Physics, Chemistry, Biology	82%	---
2002	Class 10 <sup>th</sup>	Jawahar Navodaya Vidyalaya Bokaro	AISSE	Math, Science, English	86.6%	1/80

## PROJECTS

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- **Positivity of viscous discretization procedure for meshless solvers, under Prof. N.Balakrishnan, Aerospace engineering, CAD Lab IISc Bangalore.** (Duration: May-June 2007)

Finite volume-based computations are made for most of the computational domain, in a layer in the vicinity of the wall boundary, meshless solvers are used. These attempts are limited to inviscid calculations. Positivity is important to guaranty Robustness of viscous flow Solver. It has been found that meshless solvers suffer from a lack of positivity of viscous discretization akin to the finite volume method for Cartesian-mesh calculations. The project aimed at checking positivity of different discretization schemes available to solve Reynolds Averaged Navier Stokes equation

- **A Stochastically Optimal Feedforward and Feedback Technique for Flight Control Systems under Prof. M.Sinha, Aerospace Department, IIT Kharagpur.**

The technique, called Stochastically Optimal Feedforward and Feedback Technique (SOFFT), directly descends from optimal control and in particular from Explicit Model Following Control (EMFC). Unlike the most used model following techniques, in SOFFT the feedforward and feedback control laws are designed independently of one another. This Control is to be implemented to Vehicles flying at high angle of attack. The technique uses modern control theory, Neural network concept and Bifurcation Technique

- **Development of Unmanned Air Vehicle (UAV) under Prof. M. Sinha, Aerospace Department, IIT Kharagpur.**

## SKILLS

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### Software

- **Programming:** C and Data structure, Matlab, JAVA.
- **Web Design:** HTML, basics in PHP, JavaScript and Mysql.
- **Software Tools:** LABVIEW, CFD, AutoCAD, Photoshop
- **Operating Systems:** Microsoft Windows, Linux

## ACADEMIC ACHIEVMENTS

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- Selected for B.Math in Indian Statistical Institute ,Bangalore in 2005
- Selected for National Defence Academy SSB ,Bangalore in 2004
- First Rank in AISSE (10<sup>th</sup>) in my School out of 80 students.
- Awarded MCM scholarship by IIT Kharagpur on merit basis.
- Full Scholarship awarded by Indian central Government for 7 years to complete High School Studies at Jawahar Navodaya Vidyalaya Bokaro , India

## TERM PROJECTS

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- A program written in MATLAB to compute lift, drag and moment coefficient for thin airfoil by vortex panel method.
- Report submitted on various optical method i.e. Schlieren .interferometry, shadow method to visualize and study high speed air flow.
- Report submitted on computing Mach number in test section by analyzing shockwave over wedge using schlieren optical method, area throat relationship, static pressure measurement and Rayleigh –pitot method.
- Program written in MATLAB to compute shear centre of thin open section consisting of linear and semi circular part.
- A GUI program to find the optimized Thrust and specific fuel consumption for given parameters for ideal or non-ideal Jet engine.

## EXTRA CURRICULAR ACTIVITIES & AWARDS

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- Participating in inter hall open software competition:the goal of the problem is to devise a data hiding scheme which aims at hiding the code image in cover image .The scheme should make the image indistinguishable and the method should be robust .
- Presented B-plan plastica Petrol: It was based on the idea of production of Petroleum product by decomposing the larger molecules of plastic.It would solve the ever growing energy resources problem and also reduce the pollution .
- Represented my Hall of Residence in Inter hall Volleyball competition at IIT Kharagpur in 2005-06 and 2006-07 consecutively.
- Represented my Hall of Residence in Inter hall Athletics meet at IIT Kharagpur Javelin throw and Relay race in 2006-07 and secured 4<sup>th</sup> position in Javelin throw.
- Parts of the bronze winning inter hall choreo team of my hall of residence in 2006-07.
- Participated in Robotix, Nirmaan ,Topsy –Turvi events of Kshitij ,Technical Fest At IIT Kharagpur in 2006 and 2007.

## COURSES UNDERTAKEN

<p>Departmental:</p> <ul style="list-style-type: none"><li>• Introduction to Aerodynamics</li><li>• Low Speed Aerodynamics *</li><li>• High Speed Aerodynamics *</li><li>• Introduction to aerospace Structures *</li><li>• Aerospace Structural Analysis *</li><li>• Dynamics for Aerospace Engineers#</li><li>• Aerospace Structural Dynamics</li><li>• Introduction to Propulsion system</li><li>• Theory of Jet Propulsion *</li><li>• Thermodynamics</li><li>• Signals and Network *</li><li>• Control System Engineering *#</li><li>• Mechanics of Flight</li><li>• Aircraft Stability and Control #</li></ul>	<p>Others :</p> <ul style="list-style-type: none"><li>• Computer Software (Algorithm )</li><li>• Programming and Data Structure *</li><li>• Computer Applications in Aerospace Engineering #</li><li>• Basic Electronics *</li><li>• Symbolic Logic</li><li>• Transform Calculus</li><li>• Numerical solution to ODE-PDE</li><li>• Engineering Drawing and Graphics *</li><li>• Operation Research #</li><li>• Introduction to Manufacturing Process *</li><li>• Electrical Technology *</li><li>• Engineering Entrepreneurship #</li></ul> <p># currently studing courses * With Lab Component</p>
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