Aditya Ajit Gupte

Date of birth	**18 September 1986**
Email id	Aditya@aero.iitb.ac.in
Phone No	+919833518920

Academic details

Indian Institute of Technology — **Mumbai, India**
Philosophy of Doctorate, Aerospace Engineering — Joined: July 2011

Embry Riddle Aeronautical University — **Daytona Beach, FL**
Master of Sciences, Aerospace Engineering — GPA: 3.33
Area of Concentration: Structures, Finite Element Analysis

Rajiv Gandhi Institute of Technology — **Mumbai, India**
Bachelor of Engineering, Mechanical Engineering — Percentage: 71 %
Area of Concentration: Design and Analysis

Research Project Experience

University of Petroleum and Energy Science *June'12- Present*

- **Structural Dynamics Test of Space Net supported by Cubesat Formation under Debris Impact**
  - Development of Debris removal Technique using a space net supported by CubeSat formation
  - Developed a kinematic linkage technique for deployment of space web using flexible linkages and extendible arms
  - Submitted the proposal for space experimentation of the debris removal

University of Petroleum and Energy Science *March'13 - Present*

- **Exploration of Moon's Magnetic Properties and Analysis of Moon Regolith using a Nanosatellite**
  - Submitted a proposal for European Funding Agency for developing a 10 kg Nanosatellite to be sent to the Moon
  - Designing a propellantless propulsion system using Lorentz Actuated Orbit technique
  - Designing payload for the Nanosatellite such as magnetometers, torsion balance experiment, accelerometers and optical imaging experiments

Infotech Enterprises Ltd., Hyderabad *June 2012- June 2013*

- **Shape Optimization of Conceptual Design of Aircraft Under Aeroelastic Analysis**
  - Performed Infinite Shape Optimization of Conceptual Design of Aircraft under Aeroelastic/Aeroacoustic Performance using High Performance Computing
  - Performed Analysis using Openfoam as the CFD tool and Code Aster as the Structural open-source tool. Infinite Optimization was performed using Genetic Algorithms
  - Presented the Research at the Parallel Computing Workshop at Bangalore and Secured 5th Prize all Over India in the Parallel Computing Competition

Infotech Enterprises Ltd. *June 2012-June 2013*

- **Development of Multi-Disciplinary Analysis Tool for Concurrent Optimization**
  - Developed a Multi-Disciplinary Analysis tool for optimization of Concurrent stages of Turbine Blades under Aerothermal and Aeroelastic Performance
  - Used Excel as an Input and the driver of the entire system for user input, ANSYS for

optimization of the Turbomachinery blades

- Presented a paper at the International Congress, which was well received by the scientists from various research organizations. Papers from Prof. Li He influenced the research.

NASA Glenn Research Center, OH, US *Sept'09 – June'11*

- **Thermo structural analysis of Scramjet Combustion Facility**
  - Re-designing the scramjet combustion facility present at the University of Virginia under Hy-V Project by DARPA and DOD
  - Performing Thermo-structural analysis of the entire combustion facility in order to key area of deformation and their effect on the internal flow path on the facility using NASTRAN /ANSYS for thermo – structural analysis and WIND-US for CFD analysis

Federal Aviation Administration (FAA) *March – June'11*

- **Finite Element Analysis of an entire Hawker Beechcraft Aircraft**
  - Stress Analysis of Entire Hawker Beechcraft Aircraft under flight loads prescribed by the FAA to visualize the deformation and the stresses using Hypermesh /NASTRAN
  - Determination of life of the different components of the aircraft under crack propagation at key components of the aircraft

Florida Center for Advanced Aero-Propulsion (FCAAP) *Dec'10 – June'11*

- **Thermal Fatigue and shrinkage analysis of Pensacola Bridge**
  - Modeling of the curved section of the Pensacola bridge with reinforcement steel rebar's and concrete material using CATIA
  - Modeling the thermal fatigue failure and shrinkage occurring in the steel reinforced rebar's and its corresponding damage analysis on the concrete using ANSYS APDL

Gulfstream Aerospace Corporation *June'09 – Dec'09*

- ***Finite Element Analysis of the Horizontal and Vertical Stabilizer of Gulfstream Supersonic Jet***
  - Modeling of the vertical and horizontal stabilizer of the supersonic jet by gulfstream and determination of various stresses acting on it under cruise conditions using UNIGRAPHICS NX and NASTRAN

Key Academic Projects

- ***Thermo structural analysis of Scramjet Combustion Facility*** **(THESIS TOPIC)**
  - Re-designing the scramjet combustion facility present at the University of Virginia under Hy-V Project by DARPA and DOD
  - Performing Thermo-structural analysis of the entire combustion facility in order to key area of deformation and their effect on the internal flow path on the facility using NASTRAN /ANSYS for thermo – structural analysis and WIND-US for CFD analysis
- ***Air crashworthiness analysis of Crew seat of an Aircraft*** *June'10 – Present*
  - Modeling on a crew seat provided by Gulfstream Aerospace for crash testing purposes using CATIA and Solidworks
  - Crash Analysis of the Crew Seat under 16 g' s according to FAR conditions using ANSYS and LS-DYNA
  - Performed the experimental analysis of the crew seat under 16 g's at National Institute of Aviation Research (NIAR) and compared the results of the experimental and modeling
- ***Unsteady and Vibration Analysis of Tidal Turbine Blades*** *Jan'11 – June'11*
  - Design and Optimization of Tidal turbine using blade element theory
  - Simulation of tidal turbine using dynamic meshing in FLUENT to capture the unsteadiness and vibrations taking place in the turbine using coupled Fluid – Structure

- ***Design of Water tunnel facility for Flow Visualization*** *Dec'10 – June'11*
  - Designed a water tunnel facility for Low Reynolds's flow visualization of aerofoils and turbines which was funded by the university
  - Performed Fluid – structure type of analysis for designing the various parts of the facility under a defined flow velocity
  - Built the facility using materials such as wood , plastic and designed the dye jet configuration for the flow visualization
- ***Analysis and Optimization of a Composite aircraft wing*** *Feb'10 – Dec'10*
  - Using plate and solid elements , performed the static analysis of the entire wing using carbon epoxy material and using different configurations of the ply using HYPERMESH/ NASTRAN
  - Performing optimization of the wing for weight and stress reduction using the results of the analysis performed in NASTRAN

Position of Responsibility

- ***Design Lab Manager, ERAU*** *Oct'09 – June'11*
  - Lab Manager and Administrator for the design labs in the Embry Riddle Aeronautical University
  - Responsible for the organization of different courses and seminars related to the field of design of aircraft structures
  - Maintaining the different software's such as CATIA , NASTRAN , ANSYS , FEMAP , etc. for the purpose of design and analysis in the lab
- ***Maintenance Assistant, Housing and Residence Life, ERAU*** *Oct'09 – June'11*
  - Providing customer service to students regarding maintenance related issues in the dormitories and residences
  - Provide IT support for software and hardware related issues for personal desktops and computers

Programming Skills

Programming Languages: **C++, C, Matlab, FORTRAN**
Web designing languages: **HTML**
Software's : **Unigraphics NX 6 , NeiNastran, Femap , Abaqus ,Pro-E Wildfire V3, Gridgen , Pointwise, CATIA , ANSYS 12/13 ,FLUENT, CFX, AUTOCAD 2008 , NX I-DEAS, Solidworks 2010 , Paraview , Techplot, Microsoft Office, Open Office, Latex**
Operating Systems: **Windows XP/Vista, Linux**, **Macintosh**

Publications and Awards

- **Publications**

  1) Effect of thermal Deformation in a Scramjet Test Combustion Facility
  - Publication in AIAA Propulsion Conference in Orlando, Florida

  2) Simulation of Fuel Sloshing in a Satellite tank using Finite element analysis and MATLAB
  -Publication in AIAA Structures conference in Orlando, Florida

  3) AirCrashworthiness analysis of Gulfstream Crew Seat under 16 G
  - Presented at the Hyperworks Conference in Detroit in 2012

  4) **Effect of ice accretion on vibration and fatigue of gas turbine components**

5) **Concurrent Design Optimization of Turbine Blade Analysis using Coupled Analysis**
- Presented at the International Congress on Computational Mechanics
6) **Shape Optimization of Conceptual Design of Aircraft under Aeroelastic analysis**
- Achieve Fifth Place in the Computational Code from India

- **Active Member of American Institute of Aeronautics and Astronautics (AIAA)**
- **Active Member of Royal Aeronautical Society (RAE)**
- **Won 1st prize in the Parachute design competition held by AIAA**
- **Participation in International Level Conferences in US**