Akshay Anand

Research Engineer, M.Sc.in Applied Mathematics, Fluid Dynamics, Aeronautics and Space

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Education

Program	Major	Institute	Year
Master of Science	Fluid Dynamics & Turbulence	Centrale Lille & ENSMA, France	2017-2019
Bachelor of Engineering	Mechanical Engineering	RGPV University, India	2013-2017
Higher Secondary Certificate	Physics, Chemistry, Maths & Computer Science	DAV P.School, Bokaro, India	2011-2013

Key Courses

- Numerical Methods (FEM, FDM)
- Experimental Methods (HWA & PIV)
- Unsteady Simulations (DNS, LES, URANS)
- Hydrodynamic Stability
- Applied Mathematics
- Aircraft System & Design
- Turbulence Theory & Mathematics
- Fluid Mechanics & CFD
- Aerodynamics & Aeroacoustics
- Turbulent Heat Transfer
- Machine & Deep Learning
- Mechatronics, Avionics & Control System

Research Projects

[1]Research Engineer, European Project *Clean Sky 2* — **Nov 2019 - Present**
Supervisor: Prof. Dimitri Marvis, ASDL, Director, Atlanta, USA — *Georgia Tech Lorraine, Metz, France*

[2]Aerodynamic Efforts of Propellers at High Inc Angle Using *URANS* — **Mar 2019 - Sept 2019**
Supervisor: Dr.Thierry Jardin — *ISAE-Supaero, Toulouse, France*

[3]Transition to Turbulence in Oscillating *Flows* — **Nov 2018 - Feb 2019**
Supervisor: Prof. Helene Baillet & Islam Ramadan — *Institit Pprime & CNRS, Poitiers, France*

[4]Dynamics of Diatoms in Turbulent *Flows* — **April 2018 - Aug 2018**
Supervisor: Prof. Enrico Calzavarini & François G Schmitt — *Univ Lille & CNRS-ONERA, Lille, France*

Solver for Turbulent Couette-Poiseuille Flow with Wall-normal *Stretching* — **Jan 2018 - Aug 2018**
Supervisor: Prof. Jean-Philip Laval — *École Centrale de Lille, France*

Semester Projects

Mesh Generation Framework with Wall Normal *Stretching* — **Oct 2017 - Jan 2018**
Supervisor: Dr. Ilkay Solak — *École Centrale de Lille, France*

Geothermal Heating and Cooling System Using Peltier Device — **Dec 2016 - May 2017**
Supervisor: Mr. N.D Pal — *RGPV University^{+}, Bhopal,India*

Skills and Tools

- **Languages** - Python 2.7/3.7, FORTRAN 90, C/C++, HTML
- **Operating Systems** - Unix, Linux (CentOS, Ubuntu), Mac OS, Windows
- **Software and Libraries** - Matlab, CATIA, StarCCM+, Fluent, Paraview, HDF5, TensorFlow
- **Version Control Documentation** - Git, LATEX, Doxygen, LibreOffice, MSOffice

Publication and Presentation

- Colby Weit, Jiajie Wen, **Akshay Anand**, Madhukar Mayakonda, Turab Zaidi, Dimitri Marvis ***'A Methodology for Supersonic Commercial Market Estimation and Environmental Impact Evaluation (Part I)'*** Feb 2020, Aerospace Europe Conference, Bordeaux, France
- Jiajie Wen, Colby Weit, **Akshay Anand**, Madhukar Mayakonda, Turab Zaidi, Dimitri Marvis ***'A Methodology for Supersonic Commercial Market Estimation and Environmental Impact Evaluation (Part II)'*** June 2020, AIAA Aviation Forum, Reno, United States
- Madhukar Mayakonda, Cedric Y. Justin, **Akshay Anand**, Colby Weit, Jiajie Wen, Turab Zaidi, Dimitri Marvis ***'A Top - Down Methodology for Global Urban Air Mobility Demand Estimation'*** June 2020, AIAA Aviation Forum, Reno, United States

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- A. Anand 'A Top - Down Methodology for Global Urban Air Mobility Demand Estimation' June 2020, AIAA Aiation Forum, Virtual Conference, USA
- A. Anand 'Aerodynamic Efforts of Propellers at High Incidence Angle Using 3D URANS Computation' Sept 2019, École Centrale de Lille ISAE Supaero, France
- A.Anand 'Transition to Turbulence in Oscillating Flows', Feb 2019, CNRS Institute Pprime, Poitiers, France
- A.Anand 'Dynamics of diatoms in a turbulent flow', June & Aug 2018, CNRS Laboratoire d'Océanologie et de Géosciences, Dunkerque & LMFL, Lille, France
- A.Anand 'Geothermal Heating and Cooling System Using Peltier Device', June 2017, RGPV University, Bhopal, India

Membership of Professional Societies

- American Institute of Aeronautics and Astronautics (Student Member)
- Royal Aeronautical Society

Positions of Responsibility

- Mentoring Undergraduate Student from Georgia Tech, Atlanta, USA, for their Research Project, GT Lorraine, 2020
- Co-organised Tech-Fest at Bansal Institue of Research and Technology, India, 2017

Soft Skills and Languages

- Adaptability
- Confident
- Team Work
- Rigorous
- French: B2
- Italian: A2
- English: C2 (Fluent)
- Hindi: Mother Tongue

- [1] Developing a System Dynamics Model Using Deep Learning Algorithm Capable of Forecasting the Demand of Urban Air Mobility, Commercial Supersonic Aviation and Supersonic Business Jet till 2050 (Mentored by DLR (German Aerospace Lab) & Georgia Tech, Atlanta, USA)
- [2] Aerodynamic Efforts of Propellers (Rotors) at High Incidence Angle Using URANS Computations, High Fidelity CFD Simulation [StarCCM+] (Master's Thesis)
- [3] Experimental Fluid Dynamics (LDA,PIV), Data Assimilation, Matlab & Python Script Development
- [4] Navier Stokes Equations, Lattice Boltzmann Code written in C++ and libraries of Python

[+] Bansal Institute of Research and Technology, affiliated to RGPV University, Bhopal, India