

# Seshagopal N Manavasi

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## SUMMARY

Highly motivated and capable graduate student in Aerospace Engineering with a diverse skill set, strong academic background, excellent communication and presentation skills with an analytical approach to problem solving

Expertise in compressible, incompressible and multi-phase flow CFD, grid generation, numerical techniques, heat transfer, thermal engineering, turbomachinery, combustion and programming

## SKILL SET

WIND-US, FLUENT, ANSYS CFX, AEROFLO, GASTURB, GRIDGEN, GAMBIT, SOLIDWORKS, PRO/E, CATIA, MATLAB, C/C++, FORTRAN, TECPLOT, UNIX, MS OFFICE

## EDUCATION

### Master of Science (M.S), Aerospace Engineering

*June 2010 Expected*

University of Cincinnati, OH

**GPA: 3.7**

**Relevant Coursework:** Viscous Laminar Flow, Numerical Methods, Grid Generation, Advanced Propulsion Systems, Gas Turbine Combustion, Heat Transfer, Compressible Flow

### Bachelor of Technology (B.Tech), Mechanical Engineering

*June 2007*

Vellore Institute of Technology (VIT), Vellore, India

**CGPA: 9.25 (First Class with Distinction)**

**Relevant Coursework:** Thermal Engineering, Fluid Mechanics, Turbo Machinery, CFD, Internal Combustion Engines, Object Oriented Programming

## WORK EXPERIENCE

### Research Assistant, Propulsion Integration Lab

*July 2008 - Present*

University of Cincinnati, Cincinnati, OH

- Developed an accurate bleed model for NASA by performing comprehensive CFD study of various configurations of supersonic inlet bleed holes utilizing **WIND-US** and **GRIDGEN** - project funded by **NASA Glenn Research Center**
- Contributed to the development of high performance turbine blades by conducting hot and cold particle impact experiments to determine erosion rates for thermal barrier coatings for clients such as **GE Aviation, NASA, Siemens Power Gen** etc.

### Graduate Assistant, College of Education, Criminal Justice and Human Services

*Jan 2008 – June 2008*

University of Cincinnati, Cincinnati, OH

- Hosted and organized the highly successful Southwest District Science and Engineering Expo 2008 at University of Cincinnati as part of a diverse 12 member team
- Created a database of schools and districts being funded under the STEM Grant program

### Research Intern, Energy Technology Group

*Jan 2007– April 2007*

Technische Universiteit, Eindhoven, The Netherlands

- Performed CFD simulation of fouling phenomena in heat exchangers using **FLUENT** and **GAMBIT** – project funded by EU
- Particle tracking and particle adhesion data obtained from the CFD simulations were employed to determine optimal tube orientations for minimal fouling

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## THESIS

*“Parametric study of supersonic inlet bleed holes”* – Ongoing research work guided by Prof. Awatef Hamed, Head, Dept. of Aerospace Engineering at University of Cincinnati

- Investigated the effect of various parameters such as Mach number, freestream Re, incoming boundary layer thickness, plenum pressure ratio and bleed angle on bleed performance
- Bleed performance characterized by mass flow bled, downstream flow distortion and velocity profiles
- Flow through bleed configurations involving single hole, single row of holes and 6 rows of staggered bleed holes were simulated
- Implemented segmented bleed model and compared the flow characteristics of resolved and modeled bleed

## PUBLICATIONS & PRESENTATIONS

- *“Effect of Reynolds number on supersonic flow bleed”*, Hamed. A., **Manavasi. S.**, Shin. D., Morell. A and Nelson. C, AIAA paper 2010-0591, January 2010, Orlando, FL
- *“Analysis of flow through single bleed hole in supersonic turbulent boundary layer”*, **Manavasi. S.** and Hamed A., Proceedings of the 34<sup>th</sup> Dayton-Cincinnati Aerospace Sciences Symposium, March 2009, Dayton OH
- *“Flow Characteristics through porous bleed in supersonic turbulent boundary layers”*, Hamed. A, Li. Z., **Manavasi. S** and Nelson. C., AIAA paper 2009-1260, January 2009, Orlando FL
- *“Fouling due to particulate flow across tube bundles”*, **Manavasi S.**, WET Report 2007.21, Thermo Fluids Division, TU/e, Netherlands

## ACADEMIC PROJECTS

- Turbofan engine tradeoff study for Boeing 787 using **GASTURB**
- CFD study of flow through converging-diverging nozzle using **AEROFLO**
- Design of a combustor for gas turbine engines
- Structured and unstructured grid generation using **GRIDGEN** for flow over NACA 0012 airfoil
- **MATLAB** code to generate solutions for Blasius, Falkner-Skan and Heimenz flow equations
- Generation of a boundary layer code using **MATLAB**
- Temperature distribution over electrical bus bar using **MATLAB**
- Variation of lift-to-drag ratio of an airfoil with angle of attack

## AWARDS

- University Graduate Scholarship at University of Cincinnati, 2007-2009
- Certificate of Excellence from Director of Technology for Sustainable Development, TU/e, Netherlands, 2007
- Merit Scholarship for Consistent Academic Achievement, VIT, India 2003-2007

## PROFESSIONAL MEMBERSHIPS

- American Institute of Aeronautics and Astronautics 2007-Present
- Society of Automotive Engineers 2003-Present