

BASANT KUMAR GUPTA – SYNOPSIS

Basant Kumar Gupta has done his B Tech+M Tech from IIT Bombay with high speed reactive flows (CFD) as specialization. Basant is the co-founder of Zeus Numerix Pvt Ltd and is the design head of the company. He has been associated in many technical and managerial roles. He is a CEMILAC (Govt of India) certified engineer for design using first principles, propellants, Multi-disciplinary design optimization and high-speed aerodynamics etc. He is worked on wide ranges of projects like store separation, hypersonic anti-tank munitions, projectile balloting, ship hydrodynamics, fire safety in buildings, forced and natural ventilation etc.

He is technically responsible for delivery of the projects and writing proposals with feasibility analysis. His strong background in physics helps him to understand the problems and propose design solutions. He has experience in development of specialized codes for defense industry like projectile penetration, gas turbine surge and stall, recoil systems, tank engine cooling, propellant packing and its properties etc.

He was one of the few innovators in Niti Aayog's "*Champions of Change*" and had a meeting with the Prime Minister Shri Narendra Modi. He has written many papers, guided many masters and bachelors projects, and delivered lectures in technical and business conferences.

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BASANT KUMAR GUPTA
CHIEF EXECUTIVE OFFICER

OBJECTIVE

To design and develop products for Indian defense industry and use the enabling technologies developed for civilian purposes.

SKILLS & ABILITIES

CEMILAC Certified Design Engineer for design using first principles, propellants, high speed aerodynamics etc.

Technical proposals for new software and hardware products.

Speaker in technical and managerial workshops

CONTACT DETAILS

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PROFESSIONAL EXPERIENCE

ZEUS NUMERIX PVT LTD (CO-FOUNDER)

2004 - PRESENT

- Custom Code Development, Software delivery
- Design
 - Design using hand calculations and first principles
 - High end analysis using CFD, FEM or CEM
 - Optimization techniques like Genetic Algorithms
 - Multi-disciplinary and coupled problems
 - High rise buildings and ventilation of structures
- Conceptualize, develop and maintain project delivery status and technical quality review

EDUCATION

IIT BOMBAY, DUAL DEGREE MECHANICAL 2003

Specialized in Thermal and Fluids with CFD project thesis titled “Simulation of Reactive Flows”. Undertook basic and advanced courses in CFD, FEM and numerical methods.

CODE DEVELOPMENT (SAMPLE FIVE)

- Development of three-dimensional compressible flow solver based on multi-block structured mesh. The solver includes multiple numerical schemes, turbulence model & was validated the software against benchmark cases
- Development of three-dimensional pressure correction based incompressible solver. The code included algebraic multigrid methods for solution of linear equations set, turbulence modeling, conjugate heat transfer problem and buoyancy driven flow
- Balloting prediction code for artillery gun ammunition. The code predicts pitch and yaw rates inside the barrel
- Muzzle entanglement code for prediction of probability of shell hitting the muzzle brake
- Heat flux estimation code for high speed projectiles

WORKSHOPS AND CONFERENCES

- Close to 20 technical and business lectures
- Conceptual lectures for multi-disciplinary design optimization for aerospace and defense products
- Participation in all Def Expo and Aero India since 2007

PROJECTS AND ACHIVEMENTS (SAMPLE 10)

- System level code for design of air-breathing combustion engine from intake to combustion – delivered to South Korean customer
- Design & optimization studies for winglets for regional transport aircraft – 14% reduction in drag
- Simulations for high rise buildings and industrial plants for ventilation and fire safety
- Sizing/preliminary design software for Wankel engine for UAV – software used for preliminary sizing calculations
- Thermal hydraulics in nuclear reactor and characterization of catastrophe due to blockage – world’s first simulation of full nuclear reactor for all 217 fuel pins
- Plume Impingement and Hang Fire Conditions Studies for Fighter Aircraft – missile certified for use on aircraft
- Structural Analysis of Artillery Shell for In-bore Travel – new shell design using data
- External Payload and Internal LRU Certificate for Helicopter – certification granted
- Aerodynamic Analysis of Sensor Installation on Interface Beam – certification granted for the wing tip installation
- Shock and vibration analysis on ship during missile firing – safety issues estimated for the hull structure

TECHNICAL PAPERS (SAMPLE FIVE)

- *“Integrated Modeling and Simulation of an Air-breathing Combustion System Dynamics,”* N.K. Gupta, B.K. Gupta, N. Ananthkrishnan, G.R. Shevare, I.S. Park, and H.G. Yoon, **AIAA-2007-6374** Modeling and Simulation Technologies Conference and Exhibit, Hilton Head, SC, Aug 20-23, 2007.
- Basant K Gupta, Abhishek Jain, Sreekanth Raghunath *“Innovation: Design and Analysis”*, International Seminar on *Rising with Collaboration Opportunities*, Aero India 2013
- Kalamkar, V. R., Gupta, B. K. and Shevare G. R., *“Simulation of Flow in Stirred Tank Using Multiple Reference Frames Method”* In Proceedings of 8th National and 7th ISHMT-ASME Heat and Mass Transfer Conference, 2006.
- Kalamkar, V. R., Shevare, G. R. and Gupta B. K., *“Numerical Investigation of Boundary Conditions for Navier-Stokes Calculations”* In Proceedings of the 20th National Convection of Aerospace Engineers, 2006.
- D. J. Patil, I. M. Khan, B. K. Gupta; *“Numerical Simulations of Low Reynolds Number Flow Around Micro Air Vehicle”*, International Conference on Aerospace Science and Technology; June 2008, Bangalore.

SOFTWARE COMPETENCE

- Operating Systems – Windows, LINUX, AIX, Solaris
- Analysis Software – CFDExpert®, ANSYS Mechanical, Paraview®, FDS, SmokeView
- Office Software – MS and Open office (Document, Presentation, Spreadsheet), LaTeX
- Management Software – Smartsheet, Pipedrive, OrangeHRM, Smart Draw
- Coding Languages – C, C++

MISCELLANEOUS

- Well acquainted with accounting rules & procedures
- Played an instrumental role in raising finance for the company. Prepared business plan document, initiated dialogue and underwent negotiations with the investor
- Mentoring young entrepreneurs and judging their ideas for commercial feasibility with lectures at School of Management, IIT Bombay and Pan-IIT meet
- Trekking, long distance bike trips, hitchhiking

PERSONAL INFORMATION

- Marital Status – Married with one daughter and son
- Date of Birth – 9 Feb 1981
- Indian Passport valid till 2023