VIJAY NARAYAN

'RAMRAJ', T.C 15/973, KVRA 402,

Kunnukuzhi,Trivandrum,Kerala-695035   Mobile No.9036770881   vijaymexx88@gmail.com

EDUCATION

Program	Institution	%/CGPA	Year of completion
M Tech -Thermal Engg	Indian Institute of Technology Madras, Chennai	8.35	2012
B Tech –Mechanical	College of Engineering Trivandrum	7.82	2010
XII	Kendriya Vidyalaya Pattom	84.4	2006
X	Kendriya Vidyalaya Pattom	87.2	2004

PROFESSIONAL EXPERIENCE   (7 YEARS)   Jun 2012 - onwards

Lead Engineer at GEIIPL (General Electric India Industrial Pvt Ltd (GEIIPL))

Preliminary Design Team – Competitive Assessment (Feb 2016 onwards)

- Evaluate the performance of competitor gas turbine engines to help the GE team to propose better architecture of lighter mass, enhanced performance/SFC and at competitive cost. The competitive assessment study (CA) assess the entitlement capability of the competitor engines.
- **Cessna Hemisphere Application:** Evaluated the competitor model from Pratt& Whitney (PW812) and Snecma Silvercrest and suggested that the GE engine need to be lighter to capture the project.
- **HondaJet Application:** Evaluated the competitor model from Pratt& Whitney (PW500 series) and Williams (FJ44 series) and suggested that the GE engines need to bring in additive capability to bring down the weight to win the market. GE engines have significant performance capability due to the presence of all latest technologies which the older competitor engines miss-out. The CA study also presented the strategy adopted by different competitors (Common-core approach from Pratt and Whitney) and Scaled-core approach from Williams to develop engines for this low thrust segment (1K – 4K lbf thrust).
- **RR Advance Technologies:** Evaluated the capability of the Advance core architecture from Rolls Royce (RR) and its competence against the GE9X core from GE and also identified its potential engine applications. Benchmarked the capability of these RR engines against the competing GE engines – BR725 Advance/Pearl15 vs Passport20 & XWB Advance vs GE9X so as to market the GE engines appropriately.
- **Validating the Competitor claims for different engines:** Evaluate the competitor engines on their published claims to identify their areas of technological advancement by doing IP/Patent search and suggest new areas where GE needs to invest.
- **Turbomachinery component design:** Evaluate the compressor/booster and turbine performance using CUS5 and TP3 1-D tool of competitor engines and estimate their adiabatic efficiencies, key aero parameters viz. stage loading, effectivities, stall margin.

Combustion Aero Thermal Design Team (Jun 2012- Feb 2016)

Lean Burn Combustor Design Team for Marine & Industrial (M&I) GT (Jan 2015-Feb 2016)

- **Micro-mixer design:** Proposed and evaluated different micromixer concepts (advanced mixers) for aero-derivative M&I Engines aimed at bringing down the NOx emissions to single digit numbers. Identified that the key parameters influencing shorter flames in micro-mixers are Turbulence, velocity profile and mixedness. Validated the capability of these micro-mixer designs through CFD.
- **Heat Shield design:** Proposed and evaluated the impact/feasibility of different heat shield design for flame stabilization in M&I engines so as to attenuate the unwarranted combustion dynamics. This study is very important as it helps in bringing down the maintenance and operating costs of the different GE aero-derivative engines.

Combustion Modeling Team for Aviation Gas Turbines (GT) (Jun 2012-Jan 2015)

- **Combustor dynamics:** Redesigned combustor heat shield and mixer purge holes to attenuate the issue of combustor dynamics in lean burn combustors of GE engines. Validated and established best practices for predicting combustion dynamics from Unsteady Large Eddy Simulations (LES) from Test Rig data. Rewarded with 2014 Engineering Technology Excellence award for outstanding contributions to this project.
- **Testing and Validating:** Worked in tandem with cross functional teams from Poland, USA as well as with universities (viz. University of Cincinnati) for timely completion of the mixer impedance study and combustion dynamics testing projects.

Other Courses/Trainings

- Completed A course of ACE (Advanced Course in Engineering) program as part of the Edison Cornerstone Program (2012-2015)
- Completed Geometric Dimensioning and Tolerancing (GD&T) Training (2014)
- Completed Green Belt Training (2014)
- Completed a Fundamentals of Leadership Training (2015)
- Completed a training on "Additive Manufacturing and Rapid Tooling" from CMTI (2018)

TECHNICAL/SOFTWARE SKILLS

- PRO-E, UNIGRAPHICS, AutoCAD
- MATLAB,C++
- ANSYS FLUENT, WORKBENCH
- GAMBIT/TGRID Meshing Tool
- ENSIGHT AND TECPLOT Post Processing Tools
- MS-OFFICE
- NPSS (Numerical Propulsion System Software)
- CUS5 (Compressor Unification Study)
- TP3 (Turbine Pitchline Performance Prediction Tool)

PROJECTS

Experimental investigation on Spray Characteristics of Diesel and Biodiesel   (2012 M.Tech Project)

- The project was aimed at characterizing the macroscopic spray parameters like penetration length and spray cone angle for three different fuels: Diesel, Karanja biodiesel and Coconut oil at ambient conditions for four different pressures (100,200,250 & 300 bar). A correlation for the spray penetration length based on the injection pressure & fuel density is proposed from the experimental data.
- An experimental test rig was developed for this project, which comprised of a Bosch injector calibration unit, a pneumatic arrangement for pressure build up, a pulse generator unit and a camera for image acquisition purpose. The spray images are processed using MATLAB and ImageJ software.

Computational Fluid Flow Analysis of Blood flow in Human LCA   (2010 B.Tech Project)

- This project though elementary in nature was carried out to explore the applicability of computational fluid flow analysis in medical field.
- The project was aimed at studying the effect of human left coronary artery (LCA) being modeled as a straight pipe, and as a corrugated pipe in terms of their resistance to blood flow which eventually could be attributed as a reason for a particular medical condition atherosclerosis.

COURSE WORKS (M.Tech Thermal Engineering Specialized in Internal Combustion Engines)

- Advanced Heat and Mass Transfer
- Engine System and Performance
- Design of Combustion Engines
- Simulation of I.C Engines
- Computational Methods in Engg
- Engine Instrumentation and Electronic Management
- Atomization and Sprays

SCHOLASTIC ACHIEVEMENTS

- Cash Prize of Rs 5000 awarded by CBEC for having secured more than 85% mark in Xth in 2004
- Cash Prize of Rs 5000 awarded by CBEC for having secured more than 80% mark in XIIth in 2004
- Reimbursement of fees for the Professional course (B.Tech) by CBEC for having secured a rank less than 750 in State Entrance Examination.

CO-CURRICULAR ACTIVITIES

- Coordinated industrial visits as part of the Learning Academy at GE Bangalore
- Organized several Team/Family events as part of the Fun Focal Team at GE Bangalore.
- Participant of SarPass Trekking program, 2014 organized by Youth Hostel Association of India (YHAI)
- Participated in Bangalore Midnight Marathon,2013 organized by State Bank of India (SBI)

INDUSTRIAL VISITS

- Additive Lab, CMTI
- Toyota Kirloskar Auto Parts, Bangalore
- Robert Bosch Engineering Centre, Bangalore
- Air India Hanger, Mumbai
- Jet Engine Teardown School, GE Campus

INTERESTS

- Reading Engineering, History and Fictional Books
- Badminton, Jogging
- Pencil Sketching and Caricature

STRENGTHS

- Strong Technical Acumen
- Good Inter-personnel Skills
- Diligent and Hard Working

OBJECTIVE

- Aspiring for a successful career that places me in a challenging position within a fast paced and learning oriented environment for developing my technical and inter personal skills.

PERSONAL DETAILS

Father : P N Sudarsanan

Mother : R Preethi

Brother : Vinay Narayan

Date of Birth : 22/11/1988

DECLARATION

I hereby declare that all the information furnished above is true and correct to the best of my knowledge and belief.

Date : 10/12/2018

Place : Bangalore   (VIJAY NARAYAN)