ATANU PHUKAN

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ENGINEERING TECHNICAL LEADER
GE Energy, Gas Engines

Post graduate mechanical engineer of **fluid mechanics and thermal science** background, with experience in experimental and **computational fluid dynamics** seeking **leadership opportunities**. I am passionate about both **people development and technology development** having gained exposure in both **corporate R&D as well as business** environment. **Mentored new team members** for project planning and execution. I have been involved in **development of products and technology** for various GE businesses.

Professional experience (*all with different teams within GE*)

GE Energy, Gas Engines (June, 10 – Continued)

Responsibilities: As an Engineering Technical Leader, develop CFD design practices and provide modeling based design guidance for GE Energy's Gas engine business. Mentor my team members in project planning and execution. Expand team contribution in CAE projects. Create proposals for new technology and product applications.

Key Achievements:

- Laying out vision statement and roadmap for CFD for the simulation team and extend it to the CAE team
- Drive project ownership from India
- Expand team footprint in CAE contribution to various Gas Engine components (from pure engine to systems components)
- Develop CFD capability by mentoring team members in CFD projects
- Guided a team of engineers in developing a proposal for using GE Gas Engine in India rental power market
- Developed CFD modeling methodology for conjugate heat transfer analysis of cylinder head, 1D-3D coupling CFD analysis, ventilation system design

GE Corporate Research & Development (April, 03 – May, 10)

APPLIED COMBUSTION LAB, (Jan, 06 – May, 10)

Responsibilities: As a Lead Engineer, develop multiphase physics based computational model of the gasifier for an Integrated Gasifier Combined Cycle (IGCC) plant. Challenge is to capture accurate physics in the models (*viz. reaction kinetics, multi-phase flow, slag deposition and flow etc)*. Models used for effective prediction of gasifier physics, and thus to propose design modifications for enhanced gasifier performance. Work independently and provide design guidance for effective gasifier performance. Validate models and guide experimental and business team in future direction.

Key Achievements:

- Involved from white paper in design and development of a multi-million dollar experimental set-up for testing gasifier physics
- Made novel proposals for utilization of dirty fuels as well as biomass in GE products

- Guided team members in delivering technology to GE business

MICRO AND NANO STRUCTURES TECH LAB, (Jan, 05 – Dec, 05)

Responsibilities: As an Engineer, working independently, developing sensors for GE's sensing business. Be part of a global team in developing pressure, flow and biological sensors.

TOOLS USED: FLUENT®, GAMBIT®, CoventorWare®, ANSYS®

Key Achievements:

- Developed an optimized resonant frequency based pressure sensor design meeting the customer requirements of maximum sensitivity and reliability.
- Novel concepts generated for microfluidic platform and demonstrated via prototyping.
- Novel concept generated for measuring flow rate in medical applications.
- The concepts were internally submitted for Patent filing. Two of them already filed in the US PTO.

APPLIED CFD LAB, (Jan, 04 – Dec, 04)

Responsibilities: Address design issues via computational modeling for GE Consumer & Industrial Business. Assist customers in thermal related issues for variety of products, ranging from ovens, HID lamps to short-arc lamps.

TOOLS USED: Six-sigma tools, FLUENT®, GAMBIT®, TGRID®

Key Achievements:

- Developed a 2-D thermal model for predicting surface temperature of a short-arc lamp used for fiber-optic illumination in surgical applications.
- Reduced computational time of model predicting oven door temperature from >7 days to ~10 hours.
- Developed parametric door model for automation. This provides design flexibility and faster preprocessing.

MATERIALS RESEARCH LAB, (April, 03 – Dec, 03)

Responsibilities: Flow modeling of a Chemical Vapor Infiltration (CVI) process for GE Energy business. Six-sigma based DOE tools were used to optimize process parameters viz. inlet flow rate, rotational speed of preform etc. final report out.

TOOLS USED: FLUENT®, GAMBIT®.

Key Achievements:

- Developed model to predict flow characteristics.
- Performed six-sigma DOE runs to generate transfer function of process parameters and further design optimization.
- Completed green belt project in six-sigma.

Education & Credentials

INDIAN INSTITUTE OF TECHNOLOGY, KANPUR
M.Tech in Mechanical Engineering, (Fluid Mechanics and Thermal Science)
2003 pass out with CPI – 9.33/10.0 (2nd rank of 13)

NORTH EASTERN REGIONAL INSTITUTE OF SCIENCE&TECHNOLOGY
B.Tech in Mechanical Engineering,
2001 pass out with C.G.P.A – 4.67/5.00 (2nd rank of 27)

PATENT/Publication

- "Imaging of a convective field in a rectangular cavity using interferometry, schlieren and shadowgraph", *Atul Srivastava, **Atanu Phukan**, P.K. Panigrahi and K. Muralidhar*, Optics and Lasers in Engineering, 42 (2004) pp. 469-485
- "MICROFLUIDIC DISK SAMPLER FOR BIOLOGICAL DETECTION", Proceedings at 11th International Conf on miniaturized system for chemistry and life sciences, 7-11 Oct, 2007, Paris, FRANCE, pp.1137-1139
- **3 PATENTS** ("Flow sensor", "Biological Sensor" and "Engine room ventilation")

SCHOLASTIC ACHIEVEMENTS

- **Six-sigma** green belt certified
- Graduate from a technology leadership program (**EEDP**) within GE
- Selected for **GE fund scholarship** for academic excellence during M.Tech
- 99.2 percentile in GATE – 2001 with **All India Rank – 74**
- **NCC B**-certificate

M.Tech Project:

"Study of Convective Flow Field using Optical Technique". Efforts included comparing the experimental results with simulation. One paper published in international journal.

Computer skills:

- Operating system : Win9X, WinNT, Linux/Unix
- Languages : C ++, FORTRAN
- Software : CAE: FLUENT, CFX, ANSYS Workbench
  Preprocessing/Meshing: GAMBIT, TGRID, HyperMesh
  MEMS: CoventorWare
  Others: AutoCAD, Techplot, UniGraphics

Additional information:

Permanent address: Pratap Gogoi Path, Ushapur, P.O. Moranhat,
Dist. – Sibsagar, Assam – 785670, India.

Date of birth: 8th October 1979

Marital status: Married

References can be provided on request.

Atanu Phukan