

OBJECTIVE

Seeking full time research/ engineering position in heat transfer/ fluid flow analysis, thermal management of electronics, down-hole electronics cooling (oil & gas industry), refrigeration/ energy systems, system level thermal management, vibration analysis and related areas.

EDUCATION

PhD in Mechanical Engineering (Georgia Institute of Technology, Atlanta) (08/2004–12/2009)
Concentration: Development of compact adsorption cooling system for thermal management of electronics used in harsh environment. Advisor: Dr Yogendra Joshi. GPA 3.53/4

Master of Science in Mechanical Engineering (Georgia Institute of Technology, Atlanta) (5/2008)
Concentration: Heat transfer and Thermal management of Electronics
Minor: Vibration (mechanical systems) and Fluid Film Lubrication. GPA 3.8/4

Bachelor of Technology in Mechanical Engineering (Indian Institute of Technology, Kharagpur, India) (5/2003)

CERTIFICATION

Six Sigma Green Belt (Institute of Industrial Engineers, Atlanta) (4/2009)

SKILLS

Engineering & Software:

- Modeling & simulation of thermal systems by **MATLAB & EES**
- **Multi phase flow**
- Design of **adsorption based cooling** systems
- Design of PCM (**phase change material**) and **Thermoelectric** device based cooling systems
- Thermal and structural analysis (using **ANSYS**)
- **Chip level** heat transfer
- **Vibration** analysis of **rotating** machinery
- Pressure field analysis for **fluid film lubrication**
- CAD software tools: **AutoCAD, Inventor and Solid-Works**.
- Computer tools: **MS Word, MS Excel, PowerPoint**
- Programming languages: **C, C++, UNIX Shell scripts**

Leadership and Team Work: As evident by roles at ASME, CETL-Georgia Tech. (mentioned on the next page)

Oral Communication: Evident by conference presentation and several tele-cons with project sponsors.

Languages: English (fluent, good conversational ability), Hindi (native fluency), German (basic conversational)

RESEARCH EXPERIENCE

@ School of Mechanical Engineering, Georgia Tech

Conducted research on compact cooling systems for thermal management of electronics used in harsh environments. (Research partially sponsored by Halliburton Energy Services, Houston, TX). (08/2004–08/2009)

Accomplished research work:

- **Analyzed** the cooling needs for harsh environment electronics.
- **Evaluated** several cooling technologies against cooling needs and chose adsorption based cooling system for research work.
- **Developed** a mathematical model for performance prediction of the adsorption based cooling system.
- **Developed** an innovative adsorption cycle, to adapt adsorption based cooling systems (generally used for room air conditioning purposes), for cooling of electronics used at high temperatures, in the range of 200 – 250 °C.
- **Designed** and fabricated a compact model of adsorption based cooling system, which could be possibly placed inside a drill pipe to cool electronics used for oil-well data acquisition. **Conducted experiments** on the same.
- **Studied and solved various cases** related to thermal issues in electronics packaging. This included various fluid flow and thermal analysis at scales varying from chip to enclosure level.

WORK EXPERIENCE

@Center for Enhancement of Teaching and Learning (CETL), Georgia Tech, (05/2009-08/2009)

Served as **CETL Fellow** for summer 2009.

Responsibilities included:

- **Design and Delivery** of training modules for incoming teaching assistants at Georgia Tech.
- **Organizing Panel Discussion** event for the benefit of International Teaching Assistants.
- **Representing** CETL at the Annual Graduate Exposition at Georgia Tech.

@TATA Consultancy Services, Mumbai, India (08/2003–08/2004)
Provided consultative services to customers of Hewlett-Packard for maintenance issues related to HP-TANDEM systems.

@TATA Motors (Internship), Jamshedpur, India (05/2002–07/2002)
Applied principles of KAIZEN at the assembly line for heavy vehicle gearboxes.

TEACHING EXPERIENCE

@ School of Mechanical Engineering, Georgia Tech (08/2008–12/2009)
Taught and mentored a total of 120 undergraduate students in course work related to **AutoCAD** and **Inventor** Semesters: Fall 08, Spring 09 and Fall 09.

LEADERSHIP & TEAM-WORK

@ American Society of Mechanical Engineers (ASME) (06/2008–12/2009)
Served on the **Executive Committee of ASME Atlanta** as a member responsible for College Relations and Young Engineer Programs. Important accomplishments: -

- **Organized Technical Conference** (June 09) to provide industry exposure and networking opportunity to graduating students at Georgia Tech. This also provided glimpse of ongoing research at Georgia Tech to industry representatives.
- **Facilitated and Anchored the web-cast** (March 09) of an event at annual meeting of District-F of ASME.
- **Represented ASME Atlanta** at Leadership Training Conference held at Los Angeles (March 09).
- **Delivered talks** to increase participation of Georgia Tech students in the activities of ASME-Atlanta.

@ Center for Enhancement of Teaching and Learning, Georgia Tech (05/2009–08/2009)
Served CETL as a **Graduate Fellow** for Summer 2009. Important role: -

- **Organized Panel Discussion Event** (Aug 09) to help incoming International Teaching Assistants (ITAs), overcome key challenges that come up while teaching at Georgia Tech.

@ Student Government Association, Georgia Tech (07/2006–04/2007)
Served as a **Senator at the Graduate Student Senate**, representing graduate students from the mechanical engineering department. (Fall 2006 and Spring 2007).

@ Microelectronics Thermal Lab, Georgia Tech (08/2006-06/2009)

- **Safety and Inventory management lead** at Micro-Electronics Thermal Lab, Georgia Tech.
- **Organized** fire training sessions for research group members.
- **Coordinated** with EHS (environment health and safety) division at Georgia Tech for proper inventory management at our lab.

PUBLICATIONS

Conference Publications:

- **Sinha, A.,** Joshi, Y. K., Storm, B., 2007, "Thermo-Electric Cooler Based Regenerative Adsorption System for High Temperature Electronics." Proceedings of the ASME Interpack Conference, Vancouver, Canada, 2007.
- **Sinha, A.,** Joshi, Y. K., 2009, "Thermo-Electric Assisted Adsorption Cooling System for Harsh Environment Electronics: Issues With Heat Regeneration." Proceedings of the ASME Interpack Conference, San Francisco, 2009.
- **Sinha, A.,** Joshi, Y. K., 2009, "Performance of Thermo-Electric Based Regenerative Adsorption Cooling System for Harsh Environment Electronics," ASME IMECE Conference, 2009. (Paper accepted; To be presented at conference)
- **Sinha, A.,** Joshi, Y. K., 2009, "Simulation of a Thermo-Electric Adsorption Heat Pump for Harsh Environment Electronics Cooling," Advanced Technology Workshop, IMAPS Conference, Palo Alto CA, 2009. (Paper to be presented).

Journal Publications (under review):

- **Sinha, A.,** Joshi, Y. K., 2009, "A Modified Adsorption Cycle for Cooling of Harsh Environment Electronics," Journal of Adsorption (Springer Publication).
- **Sinha, A.,** Joshi, Y. K., 2009, "Application of Thermo-Electric-Adsorption Cooler for Harsh Environment Electronics under Varying Heat Load," ASME Journal of Thermal Science and Engineering Applications.

HONORS

- **Student Competition Winner**, System Level Cooling, IMAPS (Intl Micro-Electronics and Packaging Society) Advanced Technology Workshop, October 2009.
- **Student Member of the Year Award** from ASME Atlanta for the year 2008-2009.
- **Selected as an Early Career Delegate** for the ASME Leadership Training Conference 2009.
- **Featured** in the March 09 monthly newsletter of ASME Atlanta Section.

PERSONAL

Interest in Sustainable energy systems, Martial arts, Hiking, Camp outs, Photography and Fine arts.