**AHMAD HAIDER**
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## *ACADEMIC BACKGROUND*

**Georgia Institute of Technology, Atlanta, USA [***GPA: 4.0 on a scale of 4.0***]**

- [July 2011-August 2014] *PhD in Mechanical Engineering* in Microelectronics and MEMS sensors

- [Jan 2010- June 2011] *Masters of Science in Mechanical Engineering* in Heat Transfer and Thermal Sciences
  - Graduated with summa cum laude

**Indian Institute of Technology (IIT) Kharagpur, India [***GPA: 8.52 on a scale of 10.0***]**

- [July 2004- April 2008] *Bachelor of Technology in Mechanical Engineering*
  - Graduated with magna cum laude
  - Recipient of Institute silver medal (came 2nd in the department)

- RELEVANT COURSEWORK: Conduction, Convection, Radiation, Thermodynamics, Nano and microscale heat transfer, MEMS and Microelectronics, Biomedical applications of MEMS, Control systems, Applied mathematics, Linear Algebra, Numerical methods of mathematical modeling

## *PROFESSIONAL EXPERIENCE*

[August 2008- December 2009] **Schlumberger Limited, India (Full-time):** Mechanical Design Engineer

- Designed high performance and low power batteries with a 42 hour long discharge time which were used as a part of the telemetry equipment for gathering information from remotely located deep oil wells.
- Created a new design of inflow and outflow process valves to facilitate the improvement of the oil and gas separation process. Achieved annual savings of 80000 USD.
- Organized 2 Six-sigma workshops to tackle lean manufacturing and processing challenges.

[May 2008- August 2008] **General Electric Global Research, India (Summer Intern):** Fluid sciences division

- Created a device which is able to determine the iron content in a person's blood. The device works on laminar fluid flow and is able to separate the iron particles from blood as a function of its flow rate and viscosity. Analyzed and calculated the amount of separated iron by spectroscopy.

[May 2007-July 2007] **Fair Isaac Corporation, India (Summer Intern):** Product development division

- Created a highly intuitive query based relational database system in SQL to store all business information. The front end is very user friendly graphical user interface, thereby enabling efficient access to the information for all the employees regardless of their previous knowledge of database systems.

## *RESEARCH EXPERIENCE*

- PhD thesis: Currently working on the design and fabrication of very small silicon based Microelectronics/MEMS devices which are used in state-of-art microscopy systems. Other applications of these devices are in very accurate measurements of a material's mechanical and electrical properties, real time monitoring of surface topography of very small substances etc.
- Master's thesis: Performed an experimental study to show how a single material can act as both a perfect conductor as well as a perfect insulator depending on the direction of light falling on it. Analyzed and verified the experimental results with computer aided simulations.
- Senior design project: Developed a total assay system (TAS) to perform passive and active mixing of fluids in the order of microlitres. Mixing is done through the use of silicon micro channels. These systems are very useful in performing medical tests with minimum amount of reagents.
- Designed a platelet contraction device to measure the effectiveness of anticoagulant drugs. The device simulates the role of blood platelets and quantifies platelet contraction force as a function of flow conditions and blood factor concentration.
- Designed an autonomous robot to do a real time mapping of an arena (with an overhead video camera) to distinguish certain objects designated as obstacles from other objects designated as targets. The robot then automatically creates an obstacle free path in order to pick up all the targets in the shortest time.

- Created a software package for machining 2D shapes. Instead of writing a program to do the milling operation, the user supplies a hand sketched drawing as an image file input to the device. Saved 4 man-hours /day.

## *POSITIONS OF LEADERSHIP/ACHIEVEMENTS*

- Achieved Rank 7 in International Mathematics Olympiad in 2004.
- Recipient of National Science Foundation fellowship for the years 2011-2013
- Served as the vice-president in the Mechanical Engineering Society at Georgia Tech.
- Volunteer as a tutor at "Children's education network", an education outreach program for the poor children in Atlanta.
- Received honor medal from President of India for securing the first place in the entire country in "Hindi" language examinations.

## *SKILLS AND INTERESTS*

- C#, Java, SQL, MATLAB, AUTOCAD, MICROSOFT OFFICE
- Six sigma, Microelectronics, Micro fabrication, Lithography, MEMS process design, Patterning techniques
- Marathon running, Outdoor sports, Trail Hiking, Reading, Amateur Psychology

## *PUBLICATIONS*

- "*Anisotropic Diffraction from Inclined Silver Nanorod Arrays on Grating Templates*", X. Wang, A. Haider, J. Abell, Y. Zhao, Z. Zhang, Nanoscale and Microscale Thermophysical Engineering, Vol. 12(1), 2012
- *"Effect of magnetic polaritons on the radiative properties of inclined plate arrays",* L. Wang, A. Haider, Z. Zhang, Journal of Quantitative and Radiative Spectroscopy, 2013