

SAMPATH SATTI

Junior Undergraduate
Department of Electrical Engineering
Indian Institute of Technology (IIT), Bombay

sampath.satti@iitb.ac.in, sampathsatti@gmail.com
<http://www.ee.iitb.ac.in/student/sampathsatti>
091-9004076975 (Phone)

RESEARCH INTERESTS

- Biosensors, Microfabrication, and Bioelectronics
- Microfluidics, Fabrication and Applications

RESEARCH EXPERIENCE

Capacitance sensing of fluid flow in microchannels

IIT Bombay, May 2012 - Ongoing

Supervisor: Prof. Maryam S. Baghini

Simulated the physics (electrostatics) of a microfluidic capacitance sensor, using **COMSOL Multiphysics**, with the intention of optimizing sensitivity, by manipulating **geometric parameters**. Also optimised the **electrode configuration** for sensitivity.

Currently in the process of fabrication of the device. Proposed a new method of fabricating metal contact and electrodes on glass. The finished device will feature an **electrical readout** of the **dielectric constant** of the fluid under test. A poster on the simulation results of this project received a special mention at the **Undergraduate Research Symposium**, 2012 at IIT Bombay

Inclined Exposure of SU8 for Microfilters

IIT Bombay, May 2012 - Ongoing

Supervisor: Prof. Amit Agrawal

Working out alternate methods for generating inclined UV rays from any generic Mask Aligner. Also looking at possible applications to filter components of blood based on their sizes, using meshes, that have been fabricated, using the same mask, but different angles of exposure.

PROJECTS UNDERTAKEN

- **Conway's game of life on FPGA**

Supervisors: Profs. M.B Patil J. John

Course project, Spring2012

Simulated a cellular automaton, in particular Conway's game of life on an FPGA board, the Altera. The display was observed on a custom made 16 by 16 LED matrix that we interfaced with it. Code was written in Verilog and compiled in Altera Quartus

- **Campus Transport System**

Technovation Project, 2012-Ongoing

Leading the team that is building a campus transport tracking system. Mesh networks are being used for communication. Location of all the buses will be tracked, and the information disseminated over web, phones and the bus stops themselves.

ACADEMIC HONORS/ SCHOLARSHIPS

- Ranked **90th** (out of 4.7 lakh students) in the **Joint Entrance Examination** for admission into the IIT's
- Placed **33rd** (out of 11 lakh students) in the **AIEEE** (All india Engineering Entrance Examination)
- Awarded the **Kishore Vaigyanik Protsahak Yogana** scholarship (Motivating young scientists) by the government of India
- Among **top 1 percent** of all candidates appearing for the NSEP (National Standards Examination in Physics)

SKILLS

- **Fabrication Processes** - Photolithography, MEMS processes like spin coating, wafer bonding
- **Mask design** - Mask design for MEMS in CleWin
- **Simulation softwares** - COMSOL Multiphysics, Coventor
- **Software Packages Programming**
in Altera Quartus, Scilab, LT spice, Eagle
in C++, HTML, CSS and javascript

RELEVANT COURSES

- **Bio** - Biomedical Instrumentation, Bionanotechnology
- **MEMS** - Biosensors and BioMEMS
- **Physics** - Electromagnetism, Physics of nanoscale devices
- **Core courses** - (part of the curriculum) Electronic Devices, Solar Photovoltaics, Microprocessors, Analog Circuits, Digital Systems
- **Computer Science** - Discrete Structures

EXTRACURRICULARS

- **Chief Editor** - Background Hum (Electrical Engineering Department Magazine)
- **Mentor, Avanti Fellows** - Mentoring students from underprivileged backgrounds for JEE
- **Sports** - Sports Color from Hostel at IITB, Squash, Swimming, Tennis and badminton.

REFERENCES

Prof. Maryam Shojaei Baghini
Department of Electrical Engineering, IIT Bombay
mshojaei@ee.iitb.ac.in