

**Saurabh Dilip Pethe**

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Metallurgical Engineering and Materials Science

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EDUCATION AND SCHOLASTIC ACHIEVEMENTS

* Awarded the **Undergraduate Research Award, IIT Bombay** for exceptional research work
* **Publis**hing a research paper in a journal as a main author during the internship at Siemens.
* Invited by the Institute to conduct tutorials to boost the use of contemporary computing device architectures like the CUDA
* Secured **98.20** percentile(0.02%)all over India in IIT-JEE 2010 (among 5 lakh students)
* Qualified first level (top 1%) in **Mathematics Olympiad** in 2008
* Scored 99 and 95 out of 100 in Computer Science and Mathematics respectively in 12th CBSE board

Publications

* M P Gururajan\*, Kedar Bhave, Saurabh Pethe and Suman Rao, “*Mathematical modeling of cathodic protection: A random walk like algorithm and its parallel implementation for optimal positioning of anode in CUDA*”, **CORSYM**-2013 International Corrosion Prevention Symposium for Research Scholars, Feb28-Mar2, 2013, Chennai, India and also publishing it in a reputed **journal** (awaited).
* Saurabh Pethe\*, Dr. P Venkateswaran “*Monte Carlo Simulation for Grain Growth and Analysis of Properties of C-Mn Steel*”

Internship

Siemens Technology and Services Pvt. Ltd, Corporate Research, Automation Engineering Dept (May’13-July’13)

Guide : Dr. P. Venkateswaran ()

**3D Monte Carlo Simulation of Grain Growth**

The work is aimed at applying Stochastic Monte Carlo Computer Simulation technique – random number generation and probability statistics, to study the kinetics of isothermal grain growth in metals in three dimensions (3D). The modeling approach consists of digitizing the microstructure by dividing the polycrystalline material into small volume elements and storing the spatial location and crystallographic orientation of each element. The model allows for the monitoring of an evolving microstructure as a function as a function of time

SOFTWARE AND LANGUAGES

* Programming Languages : **C**/**C++**, ORACLE, SQL, NVIDIA **CUDA** C, HTML, CSS,PHP
* Computing Packages : Scilab, Python, Matlab, LabView, MS Math
* Spoken Languages : **German** , English, Hindi, Marathi

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PROJECTS UNDERTAKEN

**// multianode project**

**// ramani project non-tech and civil project in tech resume**

**// seminar**

**//ctara project under**

**//siemens intern tec**h chl

**//Aakash tablet contest participation**

**Parallel** Programming using **NVIDIA CUDA C** for Optimisation of Anode in electrolyte[May’12-present]

*Guide: Prof. Gururajan, Prof. Ajay Panwar (Metallurgical dept., MEMS, IIT Bombay)*

* Studied the use of Anode Optimization techniques to curb galvanic corrosion in industrial processes
* Made a parallel algorithm for finding the optimum position of anode in electrolyte using CUDA
* Developed a parallel algorithm to reduce the CPU time by 15 folds using GPU and increased the efficiency of the system by 67%

**Molecular Dynamics Simulation**  [Jan’12-Present]

*Guide: Prof. Ajay Panwar (Metallurgical dept., MEMS, IIT Bombay)*

* Simulated crystallization of polyethylene molecule with various chain lengths in **LAMMPS,C++**
* Developed a bead spring molecular model for **simulation of crystallization dynamics** of polymers

**CTARA water scheme analysis and assessment project [Jan-Apr 2012]**

*Guide: Prof.Milind Sohoni, (Head - CTARA, CSE, IIT Bombay)*

* Carried out detailed analysis for functionality of existing water supply schemes in three major talukas of district Thane – Jawhar, Mokhada and Shahapur
* Designed Scheme – proposed an scheme to feed 2 tankerfed zones having 7-10 villages each, source being the Middle Vaitarna river
* Highlighted the scope of scheme execution to Zilla Parishad of Thane, after designing a feasible pipe layout (using Branch and Loop) and estimating its cost to be INR 49 lakh

Analysis of Mechanics of materials in **Leaning Tower of Pisa** [Aug’11 – Nov’11]

*Guide: Prof. K. Narasimhan (Metallurgical process dept., MEMS, IIT Bombay)*

* Modelled and simulated the mechanical properties of the Leaning tower of Pisa using various modelling and analysis pedagogies
* Carried out a detailed **stress-strain analysis** of the structure and analysed and virtually projected the trends to simulate the leaning in realtime

Assegai Simulator, Graphical Archery game, C++[Feb’11-March’11]*Guide: Prof. R.K. Joshi (Computer Science dept., IIT Bombay)*

* Developeda graphical and user friendly **game in C++** in Linux environment
* Incorporated **FLTK** graphics, also implemented button effects

**Seminar Presentation: Corrosion of Steel in Concrete**

Guide: Prof. S. Mallick, Duration: Feb-April 2006

**Description:** Carried out a comprehensive literature survey covering various publications on the corrosion of reinforcement in concrete, its various causes and cost effective measures of prevention

Wireless Remote Controlled Car [Oct’11]

*Guide: STAB(Student Technical Administrative Body), IIT Bombay*

* Built a remote controlled car for a F1 competition at IIT Bombay
* Developed the complete **RF circuit** and the **chasis** for the car
* Secured **10th** position among 100 teams in the competition

Library Management System in C++ language [Feb ’09]

*Guide: Prof. Sahu, Kendriya Vidyalaya, Chhindwara, India*

* Developed a Library Management Software in C++ for Kendriya Vidyalaya
* Appreciated for excellent work in the school computer science project
* Other C++ projects : Musical Piano, Graphical Clock, Basic maths learning software

POSITION OF RESPONSIBILITY : LEADERSHIP SKILLS

* **Coordinator,** Hospitality, **Techfest’11**
* Secured deals and managed the logistics of food and beverage supply for several high profile international guests and the whole Techfest team comprising of thousand members
* **Hostel Dramatics Secretary** [Apr ’11- Apr ’12]
* Founded and headed the Hostel Two Dramatics Society, an Initiative , staged plays and conducted workshops through the year
* Created **best Dramatics scene** inhistory of hostel-2
* **Organiser,** Hackfest Workshop at Techfest ’11
* Managed over 276 students across country for the hacking workshop liaised with Mr Sunny Waghela
* **Organiser Mood Indigo ’09,** IIT Bombay(Asia’s largest cultural festival)
* Organised The Treasure Hunt, and the Pool-side Party under the INFORMALS department

Extra Curricular

**Rubik’s Cube:**

* **Guinness World Record** and **Limca Book of World Record** holder for solving a **Rubik’s Cube** in group of 943 people

**Cultural:**

* Secured **2nd** placein **Dramatics General Championship’11**, IITB
* Won **Dramatics trophy** in Fresher General Championship’11
* Part of **winning** team of **street play** in inter hostel freshmen cultural competition (Freshiezza’10)
* Performed in front of 3000 crowd in **Performing Arts Festival,** IIT Bombay(PAF’10)
* Actively participated for **productions** in PAF’10

**Sports:**

* Won **gold medal** in long jump in district level Athletics Championship’08
* Won **gold medal** in 100m, and relay race in School Sports Meet’09
* Attended **Inter-IIT camp** for **Athletics’10**
* Enthusiast in Football, Cricket, Badminton, Tennis, Swimming, Tripple jump, Skating, weight lifting,

**Others:**

* Part of **NSS (National Social Service) team** in ’10-’11
* //ctara project