Himanshu Jain
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Graduating May'14
Dual Degree (B.Tech + M.Tech)
Chemical Engineering, IIT Bombay

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Degree / Class	Year of Passing	Institution	CPI / Percentage
Graduation	2014	IIT Bombay	7.96
Intermediate (+2)	2009	Genius Sr. Sec. School, Kota	84.00%
Matriculation	2007	Govt. Sr. Sec. School, Bayana	82.31%

ACADEMIC HIGHLIGHTS

- Secured All India Ranks **1280 in 0.4$\overline{M}$** , **4462 in 1$\overline{M}$** and **464 in 15K** in IIT-JEE '09, AIEEE '09 and GATE'13
- Presented a **Poster Presentation** on "effect of bond formation on friction between gel and surface" in Rangotsav 2011, 4th national Conference, held at ICT, Mumbai
- Secured **3rd position** in a national level online engineering quiz competition by **BASF** in Azeotropy 2011-12
- Recipient of Scholarship given by **RBSE** for academic excellence in Sr. Sec. Examination in 2009

INDUSTRIAL EXPERIENCE

SANDOZ India Pvt. Ltd.

Modelling and Simulation to calculate optimum reflux ratio *[May'12-June'12]*

- Developed a program which automatically finds **optimum reflux ratio** based on McCabe Thiele model
- Reduced simulation time to **20 minutes** to run for a distillation column (led to time **saving of 5 hours** per run)
- Implemented this program on a running distillation column data set and verified it on a distillation column in plant

Optimum Dryer selection for a process type *[June'12-July'12]*

- Developed a program which will give best set of dryers based on particle's chemical properties, purity and money
- Provided a **table comparison of dryers** for quick understanding of best dryer to be chosen among 1000s of dryers
- Compared two dryers (Tray and FBD dryer) based on their efficiency, economics and material handling
- Made a brief report on the functionality of dryers and their mathematical model to find final moisture content

Hindustan Zinc Pvt. Ltd. (Vedanta Group) | *Risk Assessment: Leaching and Purification Plant* *[June'11-July'11]*

- Made the Process Flow Charts of Leaching and Purification Plant comprising of all reactors, thickeners and HEN
- Analyzed the Material Safety Data Sheet (MSDS) of various chemicals used in Leaching & Purification Plant
- Identified the unsafe conditions and unsafe zones in the plant on the basis of Data analyzing and plant visit

BL Edusoft Pvt. Ltd. | *Human Resource Management* *[Dec'12]*

- Developed a **client side online software** for registrations and online examinations www.bledusoft.com/centre
- Generated a fully functional GUI which generate reports for registration and examination for 7 clients

ACADEMIC PROJECTS

Supervised Learning Project | *Lit survey: Sensor Network Design using Analytical Redundancy Relations* *[Jan'13-present]*

- Conducting literature survey on **Analytical redundancy relations** and its uses in sensor network design
- Learned sensor network design using **directed graph** and **signed directed graph**

Supervised Learning Project | *Optimization of Maintenance Schedule using CbPM* *[July'12-Dec'12]*

- Proposed optimum continuous condition based maintenance schedule based on model given by Lin, Zuo and Lam
- Compared it with the discontinuous maintenance schedule, modelled **using Markov Chain Model**
- Optimized discontinuous model by using **MATLAB**, work submitted for publication in a reputed European journal

Metropolis Monte Carlo program | *Course project: Simulation of a 2D hard disk system* *[Spring sem.'11]*

- Wrote a **metropolis Monte-Carlo** program in **Scilab** to simulate a two dimensional hard disk system
- Implemented square lattice as initial configuration and applied boundary conditions on the constraints

Computational Biology Project | *Ancestral analysis, gene finding and prediction* *[Autumn sem.'13]*

- **BLAST** 16S rRNA sequence *Dactylococcopsis salina PCC 8305* and found closest neighbors based on **E-value**
- Compared KaiA/B/C genes of two cyanobacteria using **Dot Plot, Local Alignment and Global Alignment**
- Analyzed microarray data from scientific journal and filtered it based on expression ratios
- Constructed data clusters using **K-Means algorithm** and analyzed content of one cluster

Feasible Splits for Reactive Distillation | *Reactive Residue Curve Maps* *[Jul' 11 – Nov '11]*

- Analyzed the feasibility of a proposed split for the design of reactive distillation columns
- Computed Reactive Residue Curve Maps (**RRCMs**) using MATLAB assuming chemical equilibrium limit
- Extended the analysis by **simulating flash-cascade model** to estimate feasible products for any reaction regime
- Determined the reaction regime in which the column must be operated to get the desired products

Underground Coal Gasification | *Modelling and Simulation ONGC Lab, IIT Bombay* *[Dec'11-jan' 12]*

- Project funded by Division of Underground Coal Gasification Technology Research, **ONGC**
- Simulated combustion reactions in coal seam **using COMSOL Multiphysics** to analyze composition profile
- Optimized reaction parameters for 1D and 2D geometries of coal **using Finite element method**
- Developed **MATLAB algorithm** to estimate the dynamic temperature and time taken for combustion of coal

Numerical Analysis Project | *Course project*: *Orthogonal Collocation and Finite Difference* *[Autumn sem.'11]*

- Devised algorithms to calculate solutions of differential equations using orthogonal collocation
- Obtained results using Finite difference method for a problem

WEB DESIGN

Virtual Labs Manager | *Web and Coding* *[April 2012-present]*

- Designed 2 online labs on heat exchangers which simulate the same in lesser time than actual experiment
- Created a **user interface for developers** like moodle to keep all uploading and queries in systematic structured way

Department Web Nominee *[2011-12]*

- Made the Chemical Engineering Association, IIT Bombay website http://www.che.iitb.ac.in/chea
- Created an interface that can connect with the **LDAP** and give user to access private data and voting

Social

- Made an **online interface** for online booking system for one of the famous Jain Temple's dharmshala's rooms by using skills of web designing http://www.mahaveerji.org/

TECHNICAL SKILLS

- Web Designing: HTML, CSS, PHP, JavaScript, MySQL
- Programming/Scripting Skills: C++, C, Java, MATLAB, Scilab
- Software skills: Aspen, Fluent, MS Office, Photoshop, Illustrator, Flash Professional

POSITIONS OF RESPONSIBILITY

Council Member, ChEA *[2011-12]*

- Part of a 4 member team in chemical department aimed towards increasing cultural interaction
- Organized Department welfare, Department trip and buddy talk session and some more events with team

Co-Ordinator, Entrepreneurship -Cell *[2010-11]*

- Organized Business Mentoring Hub, a tutoring event for business ideas in Entrepreneurship-Summit 2011

EXTRA-CURRICULAR ACTIVITIES

- Involved in Abhyasika which aims to educate poor students and provide free tuition
- Member of Group for Rural Activities which focuses on the development of rural areas, visited 2 villages as part of the initiative to help in social upliftment
- Participated in Handball at District Level in 2006-07