

# Sugandha Singla

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CONTACT INFORMATION	N209, Hostel 10 Indian Institute of Technology, Bombay Mumbai 400 076, India	Phone: +91 96196 39892 E-mail: sugandhasingla7@gmail.com Web: <a href="http://sugandhasingla.github.io/">http://sugandhasingla.github.io/</a>
RESEARCH INTEREST	International Economics, Macroeconomics, Financial Markets, Applied Statistics	
EDUCATION	<b>Indian Institute of Technology Bombay</b> , Mumbai, India Bachelor of Technology in <a href="#">Department of Chemical Engineering</a>	July 2010 -April 2014
PUBLICATIONS	<b>Sugandha Singla, Prateek Maheshwari, Yogendra Shastri</b> Resiliency Considerations in Biomass to Biofuel Supply Chain Optimisation, To be presented at ASABE Annual International Meeting, New Orleans 2015 , <i>Manuscript in preparation</i>	
CONFERENCE	<b>Young Change Makers Conclave</b> <i>Organised by United Nations Information Center &amp; Consulate General of United States, India</i> <ul style="list-style-type: none"><li>Selected among top 200 young entrepreneurs, professionals and students from all over India for dialogues with eminent leaders like US Consulate General, UNIC India Director</li></ul>	April 2012
RESEARCH EXPERIENCE	<b>Resiliency Considerations in Biofuel Supply Chain Design Optimization</b> <i>Research Assistant</i> Department of Chemical Engineering, IIT Bombay <i>Advisor:</i> Prof. Yogendra Shastri July 2014 - Present <ul style="list-style-type: none"><li>Developed <i>Deterministic Optimization Model</i> using <i>Mixed Integer Linear Programming</i> in <i>GAMS</i>; provides post harvest supply chain network configuration for lignocellulosic biofuels produced in 13 county region of Southern Illinois, US</li><li>Incorporated the theoretical concept of Regional Biomass Processing Depots (RBPDs) to quantitatively analyse and show their importance in reducing transport costs, acting as efficient storage locations and in turn, mitigating losses incurred due to disruptions</li><li>Developed <i>Stochastic Optimization Model</i> to incorporate disruptions costs accounting for uncertainties by adding probable eventualities in the model; returns supply chain design network with quantized efficiency-resiliency trade-offs</li><li>Comparisons made between robustness of supply chains obtained from consideration and non-consideration of expected disruptions shows that substantial improvements in reliability can be made with marginal rise in operating cost without decreasing efficiency very much</li></ul>	
COMPUTER SKILLS	<i>Programming:</i> C/C++, Python, MATLAB, HTML <i>Modelling:</i> GAMS- 'General Algebraic Modelling System', MS-Excel <i>Publishing:</i> L <sup>A</sup> T <sub>E</sub> X	
SELECTED COURSES	Fundamentals of Computing <sup>1</sup> Applied Multivariate Statistics Differential Equations i& ii Data Analysis & Interpretation	Challenges in Global Affairs <sup>1</sup> Optimization Numerical Analysis Complex Analysis
		Data Science <sup>1</sup> Economics Linear Algebra

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<sup>1</sup>currently pursuing on Coursera, ([www.coursera.org](http://www.coursera.org))

INTERNSHIPS	<b>ITC Ltd., Kolkata, India</b> May-July 2013 Summer Trainee, Food and Beverages Division <i>Improvisation of Supply Chain Management &amp; Logistics for 'Bingo'- Potato Chips</i> <ul style="list-style-type: none"> <li>Benchmarked current supply chain process for potato chips 'Bingo' against the process practised for 'Frito Lays'- biggest market competitor in sector and proposed key changes at both heuristic and deployment levels</li> <li>Researched markets at retail and wholesale distribution level by interacting with owners and distributors to understand the market dynamics of both products</li> <li>Built 'Manual Demand Order' and 'Estimate Fidelity errors' structure and incorporated them in 'Shortage Tool', the diagnostic tool for identifying the reasons for shortage between order quantity and the actual deliveries at the WSP to WDs</li> </ul>
	<b>Equity People, Kolkata, India</b> June-July 2012 Quantitative Analyst, Principle Investment Division <ul style="list-style-type: none"> <li>I developed trading strategies using volatility arbitrage on options by building MS Excel-based model which yielded an average returns upto 40% with Sharpe Ratio of 2 to 2.2.</li> <li>Developed linear regression models to correlate equity derivatives in specific sectors; Calculated and analysed correlations b/w index and underlying stocks</li> </ul>
	<b>Motilal Oswal Securities Private Ltd., Mumbai, India</b> December 2011 Research Analyst, Equity Research Division <i>Recent developments in Financial Markets &amp; Sub Prime Mortgage crisis of 2008</i> <ul style="list-style-type: none"> <li>Studied and analyzed recent developments in financial markets, Causes and impact of Sub-prime Mortgage Crisis of 2008 on global economy.</li> <li>Examined the aftermath of Financial Crisis and the post crisis US policy's effect on Indian markets by analyzing the trend of growth and flow of Foreign Institutional Investments (FIIs) in Indian economy in the past two decades.</li> </ul>
PROJECTS	<b>Optimisation of fantasy football team</b> April 2014 <i>Guide: Prof. Yogendra Shastri</i> <i>Dynamic Programming</i> <ul style="list-style-type: none"> <li>Modeled optimum team selection problem for fantasy premier league in MATLAB by using a dynamic programming algorithm</li> <li>Performed multivariate sensitivity analysis on the optimal output to generate different solutions and determine the impact parameters and variables, has on the optimal solution</li> </ul>
	<b>Biodiesel Production from waste vegetable oil</b> June 2011- April 2012 <i>Part of 9 member core team to install the first-ever Student's Biodiesel Production Pilot Plant with a capacity of 250l at an Institute level in India</i> <i>Guide: Prof. Sanjay Mahajani</i> <ul style="list-style-type: none"> <li>Coordinated with major project stakeholders to successfully commission plant within 2 months subsequently to produce 520 litres of Biodiesel in a year</li> <li>Analyzed the life cycle of biodiesel to characterize <i>economics &amp; sustainability</i> of biodiesel which helped in reducing dependence of IIT Bombay on diesel by 5% through diesel substitution in generator sets</li> <li>Life Cycle Assessment - Prepared a detailed LCA report for comparison of biodiesel and diesel and found that net greenhouse gas emission from B20 blend of biodiesel is less than that from diesel.</li> <li>One amongst the 50 companies and colleges to be invited across the globe to showcase project in <b>Industrial Green Chemistry World Symposium'11</b></li> </ul>

AWARDS AND ACHIEVEMENTS	<ul style="list-style-type: none"> <li>● Secured All India Rank 750 out of 474 000 students appeared for Undergraduate Engineering Entrance Exam for Indian Institutes of Technology 2010</li> <li>● Awarded Certificate of Achievement by President, <a href="#">DAV College Managing Committee</a> for exceptional performance in Academics at high school level 2007</li> <li>● Secured All India Rank 172 in National Science Olympiad and All India Rank 301 in Inter-active Maths Olympiad 2007</li> </ul>
POSITIONS OF RESPONSIBILITY	<p><b>Manager- Publicity, Azeotropy</b> 2013</p> <p>Azeotropy is the Annual Symposium of Chemical Engineering Department, IIT Bombay  <i>Built &amp; led a 2-tier team of 100 students to conceptualize and execute the entire Publicity Campaign across 250 Engineering Colleges all over the India</i></p> <ul style="list-style-type: none"> <li>● Revitalized publicity by launching new mascot, logos, videos, several new events &amp; competitions resulting in 50% growth in footfall &amp; online social media outreach</li> <li>● Established network of 100 ambassadors across nation to reach out to new colleges and ensure the efficient outreach of Azeotropy across the nation</li> <li>● Pioneered deals with printing and courier partners to reduce expenditure by 20%</li> </ul> <p><b>Convener, Rang &amp; Pixels</b> 2011</p> <p><i>Rang and Pixels is the Fine Arts and Photography Club respectively of IIT Bombay to provide a platform for 10 000 students to nurture themselves</i></p> <ul style="list-style-type: none"> <li>● Pioneered 1st Fine Arts Classes and Digital Photography Lectures, Photowalks &amp; 'Photographer of Week' ventures in campus to inspire students leading to 50% increase in activities</li> <li>● Organized the 9th edition of Kaladarshan, the Annual Photography &amp; Fine Arts Exhibition, showcasing work of more than 100 artists and 150 photographers to 5000 visitors</li> <li>● Continuous efforts led IIT Bombay to win several inter college festivals across the nation</li> </ul>
EXTRA CURRICULAR ACTIVITIES	<ul style="list-style-type: none"> <li>● Secured 3-D Modeling Competition at Chaos, The Cultural Festival of <a href="#">Indian Institute of Management, Ahmedabad</a> 2012</li> <li>● Designed <a href="#">Mood Indigo</a> Wall 2011-The Cultural Festival of IIT Bombay which received major viewership and popularity on social media (Facebook)</li> <li>● Conceptualized and executed 5 Fine Art competitions &amp; workshops in Mood Indigo 2011 attracting, 500+ participants from all colleges across the country</li> </ul>