

# SUDHIR SHARMA

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## SKILLS

- **Chemical Engineering and Process Design:** Heat and mass transfer operations. Reaction engineering. Design and simulation of process plants using HYSYS/ASPEN. Development of PFDs, P&IDs and HAZOP Studies. Mathematical modeling and optimization of processes and equipment. Project costing, planning and cost minimization using data analysis software. Implementing control systems and strategies. Equipment design, selection and optimization.
  - **Chemistry and Analytical Techniques:** Synthesis of Supported metal catalysts. Schlenkline techniques. Pilot scale process line building and modification. Operation of batch reactors. HPLC, GC/MS, BET Characterization of materials.
  - **Computer Skills:** MS Office (MS Excel solver for optimization and data analysis), HYSYS/ASPEN process simulation software. CMS material selection software. Intermediate skills with MATLAB. Some exposure to GAMS optimization software.
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## EDUCATION

**Georgia Institute of Technology, Atlanta, Georgia**

**12/2011-08/2014**

PhD in Chemical and Materials Engineering  
(PSE)

**Georgia Institute of Technology, Atlanta, Georgia**

**08/2010-12/2011**

MS in Chemical and Materials Engineering

**GPA – 3.45/4.0**

**University of Auckland, Auckland, New Zealand**

**Graduated: 12/2009**

BE in Chemical and Materials Engineering

**GPA – 3.67/4.0**

**Graduated with First Class Honors**

**Senior Year GPA – 4.0/4.0**

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## EXPERIENCE

**Graduate Research Assistant, Georgia Institute of Technology (08/2010 – 12/2011):** Responsible for synthesis of supported metal catalysts on various supports. I was responsible for characterization of product distribution for glycerol hydrogenolysis reactions at various conditions with different catalyst systems. The main motivation was to convert glycerol from bio-diesel waste stream to value added products under mild conditions with the use of heterogeneous catalytic systems. I was responsible for managing the main synthesis lab and equipment. I was also responsible for training other students on basic synthesis methods, batch reactor operation and HPLC techniques.

**Department of Chemical and Materials Engineering, University of Auckland – Undergraduate Research Assistant (11/2008 – 01/2009):** Responsible for characterizing and optimizing the product distribution from glycerolysis reaction of a mixtures of crude biodiesel feedstock. Crude biodiesel feedstock contains free fatty acids which poison the catalyst. But by glycerolysis of these free fatty acids in the feedstock they could be converted to acceptable feedstock for biodiesel production. *Finally, an optimal solution for converting free fatty acids to glycerides was developed.*

**Department of Chemical and Materials Engineering, University of Auckland –Undergraduate Research Intern (11/2008 – 01/2009):** Responsible for developing, testing and implementing a method to control temperature variations inside a domestic refrigerator using Phase Change Materials (PCMs). I developed a method which in

addition to controlling temperature profile; prolongs the spoilage of food and reduces energy consumption for the refrigerator. ***The method is now part of the department's intellectual property.***

**Algae Biodiesel (03/2008-10/2009):** Was an assistant to a graduate student working on growing algae for biodiesel production. I helped with growing wild algae on a variety of nutrients and different conditions. ***Finally, oil was extracted using solvent (Hexane) extraction, it was then analyzed and then biodiesel was produced from it.***

**ChemECar (2009):** Was team leader for designing, building and calibrating an electrochemical cell and car to fulfill certain load and distance constraints. This is a competition held at the annual CHEMECA conference. ***My team was selected from the University of Auckland and won the second position at the Australasian chapter of the competition.***

**Society of Petroleum Engineers (SPE):** Was actively involved with the starting of a student chapter of SPE at University of Auckland and it was successfully launched in October 2009. I was responsible for organizing events, awareness programs and recruitment of new members. ***The student chapter is now a recognized international SPE chapter and has various industrial sponsors as well.***

