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## Education

**Texas A&M University**, College Station, Texas  
Ph.D. in Chemical Engineering, expected 2006

**Panjab University**, Chandigarh, India  
Bachelor of Engineering (Chemical Engineering), August 1998

## Experience

### **Graduate Research Assistant**, 2002-present

Department of Chemical Engineering

Texas A&M University, College Station, Texas

Research interest includes determining optimum measurements in nonlinear systems, state and parameter estimation, and system biology.

### **Process Engineer**, 1998-2002

Indian Petrochemicals Corporation Limited

Gandhar Complex, Dahej-392130

Bharuch, Gujarat, India

Worked as **Process Engineer (projects)** in Gas Cracker Project (**ethylene plant**) from 1998-2000 and as **Process engineer (production)** in **ethylene plant** from 2000-2002.

- Jobs performed as **Process Engineer (projects)** :
  - Worked as a part of twelve-member team involved in planning and supervision of pre-commissioning activities of Gas Cracker Project.
  - Reviewed process instrument diagrams, trip logic and control loops.
  - Reviewed implementation of control loops in Distributed Control System (DCS).
  - Reviewed implementation of isometric and as built diagrams.
  - Inspected process equipments and gas cracker furnaces. This included checking internals, connected piping and certifying the process unit for commissioning.
  - Prepared standard operating procedure (SOPs) manual for gas cracker furnaces.
  - Prepared report on the modification required in ethylene plant for low turn down operation (studied feasibility of running plant at 30% of design capacity).
  - Trained field operators for operating furnace and other process equipments.
  - Worked in the commissioning of gas cracker plant. The commissioned areas included gas cracker furnaces and feed distillation unit. Job during commissioning consisted of working on DCS panel and supervision of field activities.
- Jobs performed as **Process Engineer (production)** :
  - Worked on DCS panel. The plant units operated included gas cracker furnaces, feed distillation unit, cracked gas compressor, refrigeration compressor, hydrogenation reactors, and product fractionation unit.
  - Supervised field activities that consisted of supervising field operators and ensuring plant safety for field jobs.
  - Evaluated performance of various process equipments and requirement for their maintenance.

- Worked on process control loop modifications. This included suggesting better control strategies and their implementation.

#### **Undergraduate internship, May 1997- July 1997**

Indian Oil Corporation, Gujarat, India

- Studied the material and energy management and instrumentation of various units of the refinery.
- Worked on a project of monitoring heat exchanger performance in crude distillation unit.

#### **Publications/ Presentations**

- Abhay Singh and Juergen Hahn. Optimal sensor location for state and parameter estimation for nonlinear system. Submitted to ***Industrial Engineering Chemistry Research***.
- Abhay Singh and Juergen Hahn. Optimal sensor location for nonlinear dynamic systems via empirical gramians. ***Proceedings DYCOPS 2004***, Boston.
- Abhay Singh and Juergen Hahn. Reduced order observer for high dimensional systems. ***AICHE 2004 Annual Meeting***, Austin, Texas
- Abhay Singh and Juergen Hahn. Determining optimal sensor locations for parameter estimation via covariance matrices. ***AICHE 2004 Annual Meeting***, Austin, Texas
- Abhay Singh and Juergen Hahn. State estimation of high dimensional chemical processes. ***Symposium on modeling of complex processes 2005***, Texas A&M University, College Station, Texas

#### **Computer Skills**

- Operating systems: Windows, Linux.
- Programming language: Fortran, C.
- Softwares: Matlab/simulink, maple, gproms, aspen.

#### **Honors and Awards**

- Recipient of merit scholarship, 1996-97.  
Awarded by Panjab University, Chandigarh, India.
- Recipient of merit certificate for graduating with third rank, 1998.  
Awarded by Panjab University, Chandigarh, India.

#### **Societies**

- Member, American Institute of Chemical Engineers.
- Member, βββ chapter of chemistry honor society Phi Lambda Upsilon.

#### **References**

Available on request.