



**DR. SURESH S. AGRAWAL**  
**SENIOR AUTOMATION CONSULTANT**

**CAREER PROFILE**

Suresh is a dynamic and results-driven professional with 30+ years experience of products development / commissioning, project management, sales and marketing, consulting and end-users training in advanced process control, refinery off-site automation, process simulation and information management system.

Suresh is currently also founder, President and CEO of a Houston based company Offsite Management Systems LLC, to offer integrated solutions, consulting services and training for the automation of refinery offsite operations. Suresh has conceptualized and has developed a suite of products for crude/fuels (gasoline, diesel, fuel oils) blending, tank farm management, tank quality tracking, offsite information system and plant system interfaces. He has installed innovative and technologically advanced automation software products, and integrated solutions for the automation of offsite operations of refineries worldwide and has proven and documented benefits of multi-millions \$/year.

Dr. Agrawal has also held senior positions with international companies, his last position being Director of Refinery Offsite Operations at ABB Industrial Systems Inc., Houston, TX. He has also worked with reputable companies such as 3X Corporation, New Jersey and Exxon Corporation, New Jersey. Dr. Agrawal has successfully managed many advanced offsite refinery control projects in numerous countries, such as Mexico, India, Columbia, Eastern Europe, and Asia Pacific.

Suresh has strong verbal / written communication and team leadership skills with exceptional motivational abilities. He has ability to gain creditability and respect from customers, professionals and peers. Suresh is currently also founder and President of Offsite Management Systems, a company

He has a doctorate degree (Ph.D.) in Chemical Engineering from the Illinois Institute of Technology, Chicago, and a Bachelors Degree in Chemical Engineering from Indian Institute of Technology (I.I.T.), Mumbai, India. He has published more than 30 technical papers in the area of refinery offsite automation.

## MANAGEMENT / TECHNICAL SUMMARY

Executive and Project Management	Multi-site operating & profit/loss management, performance, productivity & quality improvement, executive negotiations, presentations & consultations, partnership, alliance & joint venture management, organization development & leadership, motivational team building and effective delegations	15 Years
Hardware / Operating Systems	PC and compatibles, PS/2, HP, IBM mainframe, DOS, Windows 3.x/95+/2000/NT Workstations and Server OS, HP-UX 9.0+, OS/2, MVS/TSO, JES2, VM/CMS, UNIVAC 1100, PRIME	20 Years
Development Tools	Visual Basic 5.0/6.0, .net, BridgeBuilder, Powerbuilder, VB/VBA, IBM-RTPMIS, Excel, Outlook 97/98/2000, Visual Source Safe, Crystal Reports, Visual Build, ASPACK, One Component Products	15 Years
Databases	SQL Server 6.0/7.0/2000, Access 97-2000, Oracle/Tools/Developer 2000, Interbase, Centura, FoxPro, R:base 5000, Clipper	15 Years
Programming languages	VB/VBA,.NET, FORTRAN, C/C++, Pascal, Basic, PL/1	20 Years
MS Office Applications	Expert user, developer and integrator of solutions using Microsoft Office 9x, XP, 2000 products (Excel, Word, PowerPoint, MS Project, Visual Basic, Visual Basic for Applications, FrontPage, Outlook )	15 Years
Graphics Tools	Adobe Photoshop, Visio 2000, Photo Draw, GEMS Draw, LOTUS Freelance	10 Years
Distributed Control Systems (DCS)	Advent (ABB), TDC-3000 (Honeywell), RTPMIS (IBM), ProVox (Fisher-Rosemont / Emerson)	15 Years
Expert systems	G2 (Gensym), Neural Network, GAMS, LINDO, Optimizers and statistical analysis tools	10 Years

## **SUMMARY OF ACCOMPLISHMENTS**

### **Technical Development and Consultations**

- Conducts professional public training courses world-wide: Strategic Fuels Blending Management and Technology, Applications of linear/non-linear programming in refining industry, Refinery Offsite Operations in alliance with AIChE/ASME, Magenta Global Pvt Ltd. (Singapore), Offsite Management Systems LLC. Recent courses were conducted in Houston, Prague, Bangkok, Singapore, Kuala Lumpur, Mumbai
- Developed mathematical modeling system using non-linear multi regression techniques in .net/SQL 2008 to predict and estimate the flows from individual oil and gas wells in complex oil/gas fields with 130+ wells and regress multi compartmentalized reservoir / choke models with actual field data. The system is used in predicting the individual wells flow and cumulative production in real-time for both onshore/offshore fields in absence of individual well flow measurements.
- Developed data consolidation, integration and extraction system for gas/oil field well data to feed to the multi regression nonlinear system for individual flow estimations.
- Conducted a Master plan study for the upgrade of advanced gasoline Blending control system for a major 300 KB/Day refinery in North America.
- Successfully conceptualized, developed and commissioned one of the sophisticated automation to model online tank quality tracking system and installed in a refinery in Asia-Pacific region and is operational for last 36 months bringing them a benefit of 3-4 MU\$/year with ROI of less than one month.
- Conducted feasibility study for a European refinery to commission an advanced Gasoline blending control system
- Served the role of systems and integration architect, database designer, domain expert, problem solver, code debugger for the team members working on the development of different automation products and interfaced with them on continuous basis to ensure quality and robustness of the products to meet the functionality of intended application in the plant.
- Developed a number of products personally on Microsoft W2K/NT platform using VB/SQL-Oracle database because of my hands-on development experience and excellent computer knowledge, programming, mathematical, LP/NLP optimization and Microsoft products skills. This helped the developer team to visualize the bigger picture of company's goal for the integrated offerings.
- Developed an integrated accounting system using Microsoft Access, Excel and Visual Basic for Canadian Accounting Company. The system is in marketing stage to 3000+ independent accountants who manage financials of a number of individuals.
- Developed client-server applications for the retrieval and analysis of historical and real-time process data (IBM-9030 -ACS/RTPMIS, OS2 2.1, Excel 5.0, Visual Basic 3.0, Novell Netware 3.11, Oracle 7.0, Powerbuilder 3.0, 80486's) for Steel Manufacturing, Paper & Pulp plants and a crude oil refinery
- Developed real-time dynamic process simulator for Fuel Cell power generator pilot / commercial plant (TDC-3000, Chemstation-II, RS / 6000 CIM-21Wonderware, VIS-CIM, MS-Windows 3.1, Visual Basic 3.0, 48386's) for a consulting engineering firm.
- Conducted a scoping study for Computer Control and Integration of Oil Movement & Storage System for a refinery in Spain

- Consulted and developed control strategies for integrated higher-level control systems, such as refineries, paper and pulp, pharmaceutical, fine chemicals, steel and cement manufacturing etc., to conduct scoping studies for the feasibility of implementing process control and information management system.
- Developed many PC based DBMS applications for the Tank Inventory Management System, Blending Control and Optimization, Library Information Management System, Control Application Generator
- Developed system support and utilities, such as pre-processor for process data I/O, "WYSIWYG" report formatter, and linear programming algorithm interfaces with MINOS from Stanford University, etc. for FORTRAN based Advanced Process Control Applications.
- Complete project cycle of an "Integrated Gasoline and Gasoil Blend Control, Optimization and Scheduling System" for a refinery in Spain.
- Designed and Implemented many advanced process control applications, such as pass balancing, off-unit multiple gasoil and gasoline blend control and optimization, crude monitoring, etc. for Exxon's Refinery in the Netherlands.
- Developed state-of-the-art computer programs (1.5 man-years worth effort) for the design and simulation of centrifugal compressors. Also interfaced it with the corporation's in-house process simulator, which was used in the worldwide refineries. Responsibilities included specifications, design, development, documentation and user training. The product's user friendliness, excellent error handling and great flexibility in design and simulation options increased its usage among user refineries.
- Designed and developed new mathematical techniques for the convergence of thermodynamic properties for process streams in process simulator.
- Served as team leader to evaluate ASPEN Tech process simulator to replace or supplement Exxon's in-house process simulator and thermodynamic property estimator system
- Provided consulting and simulation expertise to Exxon refineries and chemical plants world-wide
- Provided user support and consulting to faculty and students for various commercial software products used in the academic research and education programs on UNIVAC-1100, PRIME and CDC computers.
- Served as a consultant in a team of 12 academic and professional experts in a project of "direct evaporative cooling of discharge water of a power plant". My contribution helped re-established the design basis for the nuclear plant cooling canal system and served as an expert to testify in the lawsuit between the spray manufacturer (my client and the utility company).
- Developed and implemented a complex computerized data retrieval system to monitor and analyze the performance of a cooling canal (2 miles long) for a nuclear power plant.
- Determined the cause of failure of spray cooling module for a spray cooling manufacturer and helped them remedy the situation by combination of design and parameter changes. Used extensive computer simulation techniques in the project. The billed project work increased from initially 25K\$ to 1 million \$ over 2 1/2 years.
- Developed methods for sizing and configuration of environmental control process units such as vacuum filters, clarifiers, etc.
- Designed a plant for the manufacture of epoxy resin from cashew nut shell oil based on an indigenously developed process expertise.
- Prepared a techno-economic study for manufacturing of specialized paints.

### **Computer Skills**

- Expert user and developer of solutions using Microsoft office products (Excel, Word, PowerPoint, Project, Visual Basic, FrontPage),
- Extensive working and programming experience of Operating Systems (Windows, HP-UX, OS/2, MVS/TSO, JES2, VM/CMS)
- Programming and development of applications using Database Management systems (Access , SQL Server, Oracle/Tools, Interbase, FoxPro, Centura)
- Programming with Languages - FORTRAN, C/C++, Pascal, Basic, PL/1
- Working experience with mainframe, PC's, DCS and plant control systems
- Expert systems – G2 (Gensym), neural network

## **Management**

- Formed and supervised a new group of 15+ experienced professionals in the areas of refinery off-site automation involving blending, oil movement & storage, mass reconciliation, tanks farms management, planning and scheduling systems.
- Provided project management and technical expertise for integrated blend control, optimization and planning systems at refineries in Mexico, Czech Republic, Poland, and India. The project involved integration of Regulatory Blend Control, Advanced on-line blend control and optimization, off-line blend planning systems, multi-plants and multi-periods planning and scheduling systems (PIMS, PSS) using Windows NT, HP workstation, DEC-VAX and ABB and other Vendors' DCS'.
- Established and managed a company of 5+ professionals in India to provide integrated automation solutions to process industries, such as refinery, pharmaceuticals, chemicals, food and agricultural, etc.
- Provided Project Management for "Process Control Applications' Development and Data Integration" projects for Direct Steel Making Research Plant for DOE.
- Served as a team leader to technically evaluate large commercial process simulators (ASPEN, PROCESS) with respect to their architecture, mathematical convergence, network analysis techniques, user friendliness, etc., and to recommend strategies to replace and /or interface with corporation's in-house simulator.

## **Sales and Marketing**

- 20+ years experience in sales support, proposal writing, client presentation, economic analysis of refinery on-site and off-site automation projects for domestic and international refineries (Colombia, Mexico, Venezuela, Asia, Eastern and Western Europe).
- 15+ years experience in developing marketing strategy and materials for securing advanced control and optimization systems to chemical plants and refineries worldwide.
- Built the company business for off-site automation from 1 M\$ to 80M\$+ by helping secure major off-site automation projects in the world (Mexico, Colombia and India)
- Conducted detailed market survey of status and prospects of implementation of computer control applications in various Indian process industries and suggested corporate-wide implementation plans for them.

## **Communications Skills**

- Development and conducting of end users training for advanced process controls concepts and refinery off-site automation systems, on site using hands-on lab exercises and technical presentation
- Developed and conducted training course for off-site automation systems (Blending, OM&S, Tank Farms, etc.) for refinery engineers and operators.
- Great team player with excellent written, verbal and presentation skills

## EMPLOYMENT HISTORY

Consultant	(COG Industry Off-Site Automation/ Advanced Control Applications) / Information Technology Systems	9/98 – Present
Director	ABB Industrial Systems, Inc., Houston	7/97 – 8/98
Project Manager		6/94 – 6/97
Consultant	Advanced Process Control / Management Information System	1/93 - 5/94
Vice President	3X Corporation, New Jersey	6/91 - 12/92
Managing Director	Byte-A-Bit Software Consultants Pvt. Ltd., Bombay, India	7/88 - 5/91
Consultant	3X Corporation, New Jersey	9/86 - 6/88
Senior Engineer	Exxon Research & Engineering Co.	1/84 - 7/86
Senior Analyst	Exxon Corporation, New Jersey	2/81 - 1/84
Academic Computing Specialist	United Computing Services, Inc. Chicago, Illinois	1/79 - 12/80
Graduate Teaching Assistant	Illinois Institute of Technology, Chicago, Illinois	1/78 - 8/80
Consultant	Richards of Rockford, Inc., Rockford, Illinois	6/77 - 12/77
Project Engineer	Roy F. Weston, Inc. , Chicago, Illinois	1/75 - 5/77
Project Engineer	Eskeen Engineering Enterprises, Bombay, India	5/73 - 8/73
Teaching Assistant	Indian Institute of Technology, Bombay, India	1/73 - 4/73

## QUALIFICATIONS

Ph.D. (Chem. Eng.)	Illinois Institute of Technology, Chicago, U SA.	1980
M. S. (Chem. Eng.)	Illinois Institute of Technology, Chicago, USA	1975
B. Tech. (Chem. Eng.)	Indian Institute of Technology, Bombay, India.	1972
Professional Associations	Registered Professional Engineer in the State of Illinois (P.E.) Member of American Institute of Chemical Engineers (AIChE) Member of Instrument Society of America (ISA)	

## PUBLICATIONS

- Co-editor and Author/co-author for three Chapters on Fuels Blending, Tanks farm Management, Refinery Offsite Operation in the ASTM handbook of “Petroleum and Natural Gas Refining and Processing” to be published in 2010
- 30+ Technical papers in trade journals and conferences