

## Samer E. Mansour

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NATIONALITY	Canadian	
QUALIFICATIONS HIGHLIGHTS AND RESEARCH INTERESTS	SCADA/HMI software developer. Model predictive, Fuzzy, and Classical control systems. Networked control systems modeling, simulation, and design. Internetworking, signal processing, and optimization for control applications. Linear control methods equivalence. Strong programming background ( C, C++, Java, Matlab, web SCADA applications using ASP.net C#). Network programming (Sockets, TCP, UDP/IP, SNMP, control applications programming).	
INDUSTRIAL EXPERIENCE	<b>SCADA-HMI Software Developer</b>  Trihedral Engineering Ltd. Halifax, Canada	May 2008 - Sep 2010
	<ul style="list-style-type: none"><li>• Trihedral is a leading-edge developer of SCADA/HMI software for mission-critical monitoring and control applications. The company's flagship, the VTS/VTScada Windows software, provides open-connectivity, ease-of-use, and unlimited customizability. The software and the industrial applications using it are based on a proprietary scripting language(the Visual Tag System) that provides an API to a C++ engine providing parallel event-driven processing. As part of the VTS developers team, my duties included designing and coding (in both VTS script and Visual C++) new features, providing input into product direction, debugging, writing testing codes, and testing. <b>My major contributions were adding a new SNMP driver to communicate with SNMP enabled RTU's, a DataRadio ViPR driver, and a rate-of-change tag. I was involved in many coding projects related to changes and testing of communication drivers (Modbus, TCP/IP, Allen Bradely, DNP3, OPC, Dataflow, Omron), the alarming system, web-based interface, mobile-WAP interface, database and report generation, application security, Human Machine Interface tools.</b> I was also in charge, three times, of teaching the VTS programming course offered to customers and newly hired programmers.</li></ul>	
EDUCATION	<b>Ph.D. Engineering Mathematics</b>  Dalhousie University, Halifax, Nova Scotia, Canada.	Jun. 2006
	<ul style="list-style-type: none"><li>• Research involved Remote Industrial Control over the Internet, Model Predictive Control, and Quality of Service for Industrial Control purposes.</li><li>• Dissertation Topic: "On Simplified Predictive Control via IP Networks"</li></ul>	
	<b>M.Sc. Engineering Mathematics</b>  Dalhousie University, Halifax, Nova Scotia, Canada.	Nov. 2001
	<ul style="list-style-type: none"><li>• Research involved Fuzzy, and Model Predictive Control. Non Linear Optimization and Signal Processing for control applications.</li><li>• Dissertation Topic: "Online Optimization of a Fuzzy-PID Control of a Thermal Process"</li></ul>	
	<b>B.Sc. Computer Engineering</b>  University of Balamand, Lebanon.	Jun. 1998

### Non-degree programs

- Jan. 1999- Aug. 1999. Seven qualifying courses for the Master of Science in Computer Science, Dalhousie University.
- Sep. 2002- Jun. 2003. Fully attended and passed, along with their laboratories, eight out of the ten courses required for the Master of Engineering in Internetworking program at Dalhousie University.

### INDUSTRY CERTIFICATIONS

Cisco Certified Network Associate (CCNA). (Expired in Jun. 2006)  
Cisco Certified Academy Instructor (CCAI).(Expired in Jun. 2006)

- Certified to teach CCNA 3.0.

### ACADEMIC EXPERIENCE

#### Assistant Professor of Software Engineering

Alfaisal University, College of Engineering  
Sep. 2012 - Current

#### Assistant Professor of Mathematics

Alfaisal University, College of Science and General Studies  
Sep. 2010 - Aug. 2012

#### Postdoctoral Fellow

Dalhousie University, Faculty of Engineering,  
Sep. 2006 - May. 2008

#### Teaching Assistant

Dalhousie University, Faculty of Engineering

- Tutored and marked in many Engineering subjects: Programming (C, C++, Matlab, and Java), Numerical Analysis, Probability and Statistics, Differential Equations, Real Time Operating Systems, Data Communication, and TCP/IP Internetworking. Sep.1999- Jun.2006.

#### Research Assistant

Dalhousie University, Dept. of Engineering Math, Faculty of Engineering.

- Worked on industrial control research projects involving mainly **Model Predictive Control and Fuzzy-PID** theories along with their simulation and implementation over IP networks. Sep.1999- Jun.2006.

University of New Brunswick, Dept. of Mechanical Engineering, Controls and Instrumentation(Fredericton)

- As a visiting student, I worked with Dr. Rickey Dubay's team in the advanced research lab for plastic manufacturing. My work involved installing NI DAQ hardware, implementing, and testing Fuzzy-PID and MPC control methods on **Plastic Injection Molding machines**, in addition to interfacing such machines to chillers all using National Instruments hardware and LabWindows CVI. Jan.2001-May.2001.

### PUBLICATIONS

#### Peer reviewed journals

**Mansour, S.**, (2009) "*Tuning Proportional-Integral controllers to approximate simplified predictive control performance*", ISA Transactions: Journal of Science and Engineering of Measurement and Automation Vol. 48, 2, pg. 417-422.

**Mansour, S.**, Kember, G., Dubay, R. and Robertson, B., (2005) "*Online optimization of a Fuzzy-PID control of a thermal process*", ISA Transactions: Journal of Science and Engineering of Mea-

surement and Automation Vol. 44, 2, pg. 305-314.

Kember, G., **Mansour, S.** and Dubay, R., (2006), "*Risk Aversion Predictive Control*", ISA Transactions: Journal of Science and Engineering of Measurement and Automation. Accepted for publication.

Kember, G., Dubay, R. and **Mansour, S.**, (2005) "*Continuous Analysis of Move Suppressed and Shifted DMC*", ISA Transactions: Journal of Science and Engineering of Measurement and Automation, Vol. 44, 1, pg. 69-80.

Kember, G., Dubay, R. and **Mansour, S.**, (2005), "*On Simplified Predictive Control as a Generalization of Least Squares DMC*", ISA Transactions: Journal of Science and Engineering of Measurement and Automation Vol. 44, 3, PG. 345-352.

Kember, G., Kang, T., **Mansour, S.**, and Dubay, R. (2006), "*Characteristic Equations for Closed Loop Time Constants in Continuous Limit of Multi-Input, Multi-Output Predictive Control*", ISA Transactions: Journal of Science and Engineering of Measurement and Automation. Accepted for publication.

### Conferences

Samer Mansour, Bill Robertson, Guy Kember, Bill Phillips. "*Using Model Predictive Control for Real-Time Control over the Internet*". CCECE'04. IEEE 2004.

### AFFILIATIONS

Active participant in the "*Networked Control Systems Repository*". Provided tools written in C++ for Networked Control Systems simulation by adding control modules to the network simulator **ns-2**. (Available on <http://filer.case.edu/org/ncs/links.htm>)

### SKILLS

My education is a fertile fusion of three disciplines: Computer Engineering, Applied Mathematics, and Computer Science. Hence, one of my best qualifications is the well-rounded knowledge in the three domains of industrial control, computer networks, and applied mathematics that all require heavy programming.

Research and industrial skills

- Excellent industrial experience in the design and implementation of **SCADA/HMI applications** (both conventional and web-based).
- Excellent academic and practical experience with the design and implementation of **industrial control systems (PID, Fuzzy Logic based control, Model Predictive Control)**.
- **Excellent programming skills in C, C++, Java, C#, Lisp, Assembly Languages (Intel X486 family, Motorola 68000, MIPS), some usage of Unix shell scripts.** Excellent understanding of Object Oriented paradigm. Excellent experience with **Matlab** for general numerical computations and for Signal Processing, Wavelets, and Control Systems design purposes. Programming projects included mostly simulation and implementation programs for **Industrial Control and Networking protocols, Numerical Analysis and Linear Algebra programs, and Data Structures**. Some projects included **Sockets Programming, and Voice over IP under GSM compression** in a Linux environment. Some undergrad projects involved game design and implementation and the use of Borland BGI graphics library. I added two agents (a plant agent and a controller agent) to the network simulator **ns-2**, in order to simulate networked Control Systems. These two agents are referenced as NCS tools on the "Networked Control Systems Repository" (<http://filer.case.edu/org/ncs/links.htm>).
- Excellent experience with **Network Programming**: have programmed and implemented many TCP-UDP/IP applications. The most recent project was the networked control of a DC motor via a UDP/IP network which involved heavy socket programming to add UDP functionality to National Instruments LabWindows CVI version 5.0.

- Excellent knowledge and experience with **NI boards and controlling them using NI LabWindows/CVI**.
- Configuration, Management and Design of Networks using Cisco equipment: **Cisco IOS, Switching, TCP/IP Internetworking, VLAN, VPN and IPSEC configuring, IP routing protocols OSPF, BGP, RIP**. Network Analyzers and simulators including Domino NAS and Opnet. Network Security and Firewalls.
- Academic experience with Circuits, Digital Circuits, Electronics, Signal Processing and Telecommunications.
- Academic experience with Artificial Intelligence using LISP, Database (SQL, Microsoft Access), Programming for Real Time Operating Systems using C, Software Engineering, and Data Structures.
- Assembling (hardware and software) and troubleshooting PC based computer systems, and small computer networks (LANs).
- Operating Systems: Unix/Linux, Windows.
- Applications:  $\LaTeX$ , common Windows database, spreadsheet, and presentation software.

#### Employability Skills

- Willingness to learn and overcome new challenges. Patience and perseverance.
- Ability to perform in equal capability as a leader and a team-member.
- Good communication and teaching skills.
- Enjoyment in designing and implementing problem solving pieces of software.

#### LANGUAGES

Fluent in 3 languages (spoken and written): Arabic, English, and French .