

## Syed Ameenuddin Hussain

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### EDUCATION

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#### Master of Science

KING FAHD UNIVERSITY OF PETROLUEM AND MINERALS, Dhahran, Saudi Arabia.

*Master of Science in Control, Instrumentation and Systems Engineering. Sep 2000-Jan 2004.*

**Cummulative GPA: 3.53/4.0**

#### Bachelor of Science

OSMANIA UNIVERSITY, Hyderabad, India.

*Bachelor of Engineering in Mechanical Engineering. Aug 1997-April 2000.*

**Cummulative Percentage: 86% (GPA – 8.6/10)**

### PROFESSIONAL EXPERIENCE

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Year	Location and Position Held	Responsibilities
March 2004 – present	<p><b><i>King Fahd University of Petroleum and Minerals.</i></b> Dhahran, Saudi Arabia</p> <p><i>Faculty in Systems Engineering Department.</i></p> <p>Position: Lecturer/Instructor</p>	<p><b><u>Research:</u></b></p> <ul style="list-style-type: none"><li>• Currently working as research member in KACST research project titled “Novel Tracking and Mitigation Strategies for Power Quality and Reliability Improvement in Electric Networks”</li><li>• Working as a research member of KACST research project titled “Prediction of Permeability and Rock Mechanical Properties, and Identification of Lithofacies Using Latest Artificial Intelligence Techniques”</li><li>• Modeled healthy &amp; unhealthy ECG signals using Labview.</li><li>• Developed and implemented code and GUI for application of ANFIS in permeability prediction of reservoir rocks.</li><li>• Developed and implemented a soft starter method for improving the INRUSH current characteristics of A/C's using PIC microcontroller and Labview.</li></ul> <p><b><u>Teaching:</u></b></p> <ul style="list-style-type: none"><li>• Taught associate degree courses (both lecture and laboratory sessions) to the junior and senior students</li><li>• Developed online course content for junior level courses.</li><li>• Developed revised laboratory manuals for five different laboratories taught at the department.</li></ul> <p><b><u>Administrative:</u></b></p> <ul style="list-style-type: none"><li>• Member of community affairs committee – a university level committee for two years.</li><li>• Member for different department committees like ABET accreditation, Information, Scheduling, and Control group committees.</li><li>• Worked as coordinator for junior and senior level control labs as well as one-level lecture courses.</li><li>• Involved in proposing an industrial consortium to promote the department program.</li><li>• Involved in maintenance of the department website, development of brochures, booklet and other</li></ul>

		<p>related information materials for the department.</p> <ul style="list-style-type: none"> <li>• Managed and coordinated the registration setups and websites of four different workshops organized by the department.</li> <li>• Advising students in academic &amp; personal development. Assisting &amp; helping them in their senior projects.</li> </ul>
September 2000 – January 2004	<p><b>King Fahd University of Petroleum and Minerals.</b> Dhahran, Saudi Arabia</p> <p><i>Staff in Systems Engineering Department.</i></p> <p>Position: Research Assistant</p>	<p><b><u>Research:</u></b></p> <ul style="list-style-type: none"> <li>• Proposed and analyzed load shedding techniques on real data taken from a residential A/C Load.</li> <li>• Involved in research project in capturing and analyzing dynamics of residential air-conditioned house.</li> </ul> <p><b><u>Teaching:</u></b></p> <ul style="list-style-type: none"> <li>• Taught laboratory sessions to the junior and senior level students</li> </ul> <p><b><u>Administrative:</u></b></p> <ul style="list-style-type: none"> <li>• Assisted faculty members in undergraduate student grading and exam and quiz proctoring.</li> <li>• Assisting the department in non-teaching departmental work like organization of department campaign activities, setup of laboratories equipments etc.</li> <li>• Assisted the registrar department in registration related activities for student like assisting them in add/drop and/or transcript distribution etc.</li> </ul>

## RESEARCH PROJECTS

### 1. Novel Tracking and Mitigation Strategies for Power Quality and Reliability Improvement in Electric Networks.

King Fahd University of Petroleum and Minerals. (Funded by KACST)

Role: Co-Investigator.

Ongoing

Duration: 2 years (Sep 2010 – Aug 2012)

### 2. Prediction of Permeability and Rock Mechanical Properties, and Identification of Lithofacies Using Latest Artificial Intelligence Techniques.

King Fahd University of Petroleum and Minerals. (Funded by KACST under RI, KFUPM)

Role: Co-Investigator.

Completed

Duration: 2 years (Sep 2009 – Aug 2011)

### 3. Modeling and simulating healthy & unhealthy ECG signals using Labview.

King Fahd University of Petroleum and Minerals. (Funded by KFUPM)

Role: Co-Investigator.

Completed

Duration: 1 years (Jan 2009 – Dec 2009)

### 4. Developing Fuzzy Logic Modeling Capability, Phase-II

King Fahd University of Petroleum and Minerals. (Funded by RI, KFUPM under project no. CPM2276)

Role: Co-Investigator.

Completed

Duration: 1 years (Feb 2008 – Feb 2009)

### 5. Permeability Modeling for HRDH/Khuff, using Fuzzy Logic Approach

King Fahd University of Petroleum and Minerals. (Funded by RI, KFUPM under project no. CPM2275)

Role: Co-Investigator.

Completed

Duration: 1 years (May 2007 – Mar 2008)

### 6. Microcontroller Based Soft-starter for Air-conditioner Loads.

King Fahd University of Petroleum and Minerals. (Funded by RI, KFUPM under project no. CPM2275)

Role: Co-Investigator.

Completed

Duration: 1 years (Sep 2004 – Mar 2005)

**7. Identification of Physically Based Models of Residential Air-Conditioners for Direct Load Control Management.**

King Fahd University of Petroleum and Minerals. (Funded by RI, KFUPM under project no. ARI-021)  
Role: *Co-Investigator.* Completed

Duration: 1 years (Jan 2003 – Dec 2003)

**8. Identification and Control Strategy Applied in Load Management of Residential Air-Conditioners loads.**

King Fahd University of Petroleum and Minerals. (M.S. thesis)

Role: *Principal-Investigator.* Completed

Duration: 1.5 years (Aug 2002 – Jan 2004)

**9. Design and Fabrication of Automated Guided Vehicle (AGV).**

Muffakham Jah College of Engineering, Osmania University. (B.S. final year project)

Role: *Principal-Investigator.* Completed

Duration: 8 months (August 1999 – Mar 2000)

**10. Design and Fabrication of portable refrigerator for storing chocolates.**

Muffakham Jah College of Engineering, Osmania University. (All India level competition)

Role: *Principal-Investigator.* Completed

Duration: 4 months (Jan 1999 – April 1999)

*Note: Abstracts of the projects can be requested by email.*

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## **RESEARCH WORK**

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My research interest is in the field of control, instrumentation, power and load management, identification and artificial intelligence. For the past 6 years, I have contributed to the developing of support for strategies in improving power quality, identification and optimal control strategies applied to load management of residential air-conditioners, designing and implementation of hardware and software based instrumentations for microcontroller based soft starting of A/C loads, applied artificial intelligent techniques in permeability prediction of petroleum sources and implementation of internet based reading of blood pressure measurements.

For the past year, I am involved with a research group whose main aim is to develop mitigation strategies for power quality control of electrical sources. Apart from that during the past two years I am also involved in application of fuzzy, neural network techniques in prediction of permeability and lithofacies of rocks in the area of petroleum engineering and contributing for more than eight months towards analysis of healthy and unhealthy ECG for a given patient without involving a doctor. In additions to above I have some past research experience in application of linear matrix in-equalities, DSP, peizo-electric based MEMS systems and process control.

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## **PUBLICATIONS:**

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- "Identification of Physically based models of Residential Air-Conditioners for Direct Load Control Management", Sami El-Ferik, Syed Ameenuddin Hussain and Fouad M. AL-Sunni, Asian Control Conference 2004, ASCC2004 Melbourne, Australia.
- "Weather Sensitivity of Physically Based Model of Residential Air-Conditioners for Direct Load Control: a case study", Sami El-Ferik, Syed Ameenuddin Hussain and Fouad M. AL-Sunni, Applied Simulation and Modeling, ASM 2004 Rhodes, Greece, June 2004, pg 189-194.
- "Constrained Optimal Control of An Aggregated Physically Based Model of a Residential air Conditioner for Load Management.", Sami El-Ferik, Syed Ameenuddin Hussain and Fouad M. AL-Sunni, 2nd IIEC Conference, Riyadh, KSA.
- "Identification and Weather Sensitivity of Physically Based Model of Residential Air-Conditioners for Direct Load Control: a case study", El-Ferik, S., Ameenuddin, S, and AL-Sunni, F., Elsevier Science SA, Energy and Buildings, August 2006, pg: 997-1005; Vol: 38
- "Harmonics induced by triac-based soft starting of an induction motor in a residential air conditioner", El-Ferik, S., Belhadj, C. A., Benamor L., Ameenuddin S., Modeling, Identification and Control, MIC 2006, IASTED.
- "A simulator for single phase induction motor-converter performance", Ben Amor, L., Belhadj, C.A., El-Ferik, S., Hussain, A.S., Proceedings of sixth IASTED International Conference, European Power and Energy Systems, EUROPE, Rhodes, Greece, June 2006, pg:388-394.
- "A microcontroller-based soft-starter for residential air-conditioners: harmonic analysis", S El-Ferik, C. B. Ahmed, L.Ben Amor and S. A. Hussain, International Journal for computation and mathematics in electrical and electronic engineering, Compel, Emerald, Vol. 27 No. 5, 2008, pg:1081-1097.

## INTERNATIONAL SEMINARS PRESENTED:

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- “Weather Sensitivity of Physically Based Model of Residential Air-Conditioners for Direct Load Control: a case study”, Presented in ASM 2004, Rhodes, Greece, June 28-30, 2004.
- “Harmonics induced by triac-based soft starting of an induction motor in a residential air conditioner”, Presented in MIC 2006, IASTED Conference, Lanzarote, Spain, Feb2-4, 2006.

## COURSES TAUGHT

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I am in the field of teaching from the past **6 years**. I have gained extensive experience in teaching both lectures and labs for the bachelor of engineering level students. Following are the brief list of courses taught and there descriptions:

Position	Courses	Brief Description
<b>King Fahd University of Petroleum &amp; Minerals.</b> <b>Lecturer,</b> Dhahran Campus	<i>Introductory courses:</i> Introduction to technology.	This course introduces the student to technology by presenting examples of its use in different industries. It also describes the seven essential resources for any technological task & states the seven-step method of problem solving. It introduces the basic terminologies in electronics, construction, manufacturing, communication, Internet & e-commerce, energy & power.
	<i>Basic courses:</i> Numerical Methods.	This course introduces students to roots of nonlinear equations, solutions of systems of linear algebraic equations, numerical differentiation and integration, interpolation, least squares and regression analysis, numerical solution of ordinary and partial differential equations, introduction to error analysis and engineering case studies.
	<i>Core courses:</i> Modeling and Simulation, Linear Control Systems, Linear Control Design, Computer Control Systems, Control Instrumentation.	Introduction to modeling and simulation of various real time systems, Modeling using analog-digital computer, Matlab and Simulink simulation models, Analysis of responses of first and second order systems, Linear systems, Ordinary Differential equations models, transfer functions, block diagram manipulation, open loop and close loop systems, time domain analysis, response of systems to different test signals, Steady state analysis. Concept of stability, Routh-Hurwitz criteria, controller design, first level of instrumentation and mechatronics, basic concepts of switching input and output devices, sensing devices, Transient and Steady State analysis and design specifications. Root locus, Design using Root locus. Frequency Response Techniques, Bode plot, Nyquist plot, principle of specifications and controller Design in the Frequency domain, State-space model, analysis of the state-space model, Controllability and Observability, pole placement, and robust Control, Elements of Computer Control Systems, A/D and D/A, Sampling theorem, signal conditioning, anti-alias filters, sensors, actuators, discrete time systems, digital control design, digital PID control, programmable logic controllers, computer control technology including distributed computer control, Fieldbus technology, and OLE for process control.

## COMPUTER SKILLS:

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Operating Systems	Windows (98, XP, Vista and 7)
Programming Languages	Matlab, Labview & FPGA, Mathematica, Microcontroller (PIC,80xx series)
Multimedia Software's	Adobe products (Photoshop, Illustrator, Dreamweaver, Flash)
Miscellaneous	Microsoft Office, Visio, Latex, HTML, ASP programming

## HONORS AND AWARDS:

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- Awarded Distinguished Faculty for two consecutive years.
- Research Assistantship at King Fahd University of Petroleum & Minerals.
- Awarded Silver medal for standing 2nd in the university in B.S.
- Held the first prize in Design based competition at Techfest '99, IIT, Mumbai.

## PERSONAL DETAILS:

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Date of Birth	11 <sup>th</sup> March 1979.
Nationality	Indian.
Marital Status	Married.
Languages	English, Urdu ( <i>Native</i> ), Arabic ( <i>Beginner</i> )
Interests & Activities	Volleyball, Swash, video games and reading.

## REFERENCES:

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**Dr. Sami El-Ferik** (*M.S. Thesis Advisor*)  
Associate Professor, SE Dept,  
KFUPM, Dhahran, KSA.  
[seferik@kfupm.edu.sa](mailto:seferik@kfupm.edu.sa)  
Tel: +9663-860-2542.

**Dr. Fouad Al-Sunni,**  
Professor, Chairman (SE Dept)  
KFUPM, Dhahran, KSA.  
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