Syed Asad Abbas

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CURRICULUM VITAE

Education

Current: Enrolled in a three year **PhD program** at **ARCES, University of Bologna** starting from January 2009**.**

2007: **Master's of Engineering in Socware - Integrated Systems for Communication and Media** from University of Linköping, Sweden. *[www.lith.liu.se/en/master/soc.html]*
Title of Master Thesis: A Digital CMOS Pulse-Width Modulator for Class-D Power Amplification

2005: **Master of Engineering in Communication and Interactivity** from University of Linköping, Sweden *[www.lith.liu.se/en/master/ci.html]*
Title of Master Thesis: Large Signal Physical Simulations of Si LD-MOS transistor for RF application

2001: **Postgraduate Diploma in Technical** Education from Islamic University of Technology, Dhaka, Bangladesh *[www.iutoic-dhaka.edu]*
Title of Final Thesis: Reliability Evaluation of A Single Area Power System

1999: **One-Year Diploma Certificate in Computer Science** from Faith Institute of Technology, Hyderabad

1998: **Bachelor of Engineering in Electronic** from NED University of Engineering and Technology, Karachi, Pakistan *[www.neduet.edu.pk/electronics/index.htm]*
Title of Final Thesis: Microlab, a test bench for designing and troubleshooting Electronics circuits

Work Experience

Current: Research Scholar at ARCES, University of Bologna, Italy. Working on a research project "Modeling and physics based simulation of power MOSFETs for RF ICs", under the fellowship of Borsa di Studio. [*www.arces.unibo.it*]

1998 – 2000: **Trainee Engineer** at Pakistan Telecommunication Company Limited PTCL Optical Fiber Communication network [*www.ptcl.com.pk*]

1998 – 2002: **Lecturer** at NTCMI, responsibilities: Deliver lectures to the bachelors of engineering students, for Communication (digital, analog), Basic Electronics, Digital Electronics and Networking.

1998 **Lecturer** at Faith IT College, responsibilities: Deliver lectures to the diploma students, for Basic Electronics, Digital Electronics and Networking.

1997 **Internship Engineer** at Singer Electronics Pakistan private limited, Karachi [*www.singerpakistan.com.pk*]

Language Skill

Urdu: -	**Mother Tongue**
English, Hindi: -	**Fluent**
Swedish: -	**Basic**

Achievements and Awards:

2001: OIC Scholarship for higher education: Granted by the Organization of Islamic Conference for One year of Postgraduate Diploma in Islamic University of Technology, Dhaka

2008: Marie Curie Fellowship of the European Union: Granted by the EDITH Scientific and Steering Committee for the six months visiting position on the project "Modeling and physics based simulation of power MOSFETs for RF ICs". At the Campus of Cesena, the University of Bologna.

2008: Borsa di Studio Grant: One year scholarship extendable for three, by the Infineon Technology, for the research project cum PhD "Modeling and physics based simulation of power MOSFETs for RF ICs". At the Campus of Cesena, the University of Bologna.

Conferences and Workshops:

2008: SINANO Device Modeling Summer School: Organized by The Italian Consortium for Nanoelectronics and the Device Modeling Group of ARCES - University of Bologna. The aim of the Summer School was to enhance the knowledge in advanced modeling, simulation and characterization

techniques amenable to conventional and novel nano-CMOS devices. Furthermore the device physics and the corresponding models, numerical techniques, programming and simulation tools, and experimental characterization techniques was also taught.

2008: Workshop on Low Field Transport in Advanced MOSFETs: Organized by NanoSil, in the framework of the Nanosil Visionary Project WP1, Subproject Transport in Nano Device. The workshop mainly focused on the delicate issue of the physics of mobility in advanced MOSFETs.

Areas of Expertise

- Modelling and simulation electronic devices
- VLSI Design
- Mixed Signal Processing
- Digital Filter Design
- Digital Integrated Circuits
- Analog and Digital System Design
- Microchip Fabrication
- RF System Design
- Cadence Integrated designing

Tools and Applications

- Operating Systems: Microsoft Windows (XP, Vista), Apple Mac OS (Tiger, Leopard), Unix, Linux, SUN Solires
- T-CAD Simulation software: Synopsys TCAD Sentaurus, SPICE, Silvaco, Medici
- Software Packages: Visual Studio, MS Project, MS Office Products
- Engineering Software Packages: Cadence Integrated designingg, FPGA Advantagee, AutoCAD, Matlab, Femlab, Origin**.**

General Skills

- Strong Presentation and Documentation skills
- Strong visualization and artistic temperaments
- Strong skills for Researching, Logics and Reasoning

Academic Projects

10/2006 – 04/2007: Master Thesis: A Digital CMOS Pulse-Width Modulator for Class-D Power Amplification.

Description:

My role is to design and implementation of "Error-Feedback Noise-Shaping Loop of High-Speed CMOS Pulse-Width-Modulator"

Highlights:

A digital stereo lowpass pulse-width modulator has been designed and soon will be fabricated in a 3.3V, 0.35 µm CMOS process. Also, placed on the chip will be a highpass pulse-width modulator for test purposes. This modulator will be tested with the purpose of investigating novel techniques for direct digital synthesis.

Tools:

- MATLAB
- FPGA Advantage
- ModelSim
- HDL Designer
- Cadence Integrated design

12/2003 – 06/2004: Master Thesis: Large Signal Physical Simulations of Si LD-MOS transistor for RF application.

Description:

My work was to design, simulation and optimization of the LD-MOS transistor characteristics of the structure provided by Infineon technology at Kista, Stockholm. After completing my thesis I continued this project for one year as Research Employee in Department of physics, Linköping University.

Highlights:

It was a joint project of Department of Physic, Linköping University, Infineon technology Kista and Swedish Defence Research Agency FOI Linköping. We had to find out the problems in there transistor which breakdowns at 2.7 GHz whereas it should work for 3G Frequencies. *[www.ep.liu.se/exjobb/ifm/mf/2004/1333]*

Tools:

- Matlab
- ISE-TCAD

01/2006 – 05/2006: VLSI designing and simulation of High-Speed 8-bit Pipeline Current-Steering D/A Converter

Description:

It was a project to design and fabrication of Very Large Scale Integrated (VLSI) circuits in sub-micron CMOS technology, to acquired considerable insight into VLSI design methodology, transistor level design, high-performance and low-power circuit techniques, circuit layout, and chip design.

Highlights:

It was an academic course project supports the CDIO project highlights and the LIPS project model to promote teamwork and communication skill required by industry to run large and complex VLSI projects. The complete system consists of digital processing part and analog circuits, which mainly are current sources. Segmented architecture has been used for DAC, chip has been fabricated afterwards.

[www.asad.se/project/masters/vlsi.pdf]

Tools:

- Matlab
- Cadence Integrated design

01/2006 – 05/2006: Designing a Mixed Signal Processing System

Description:

In this academic project we designed a Mixed Signal Processing System the complete system contain an integrated analog anti-aliasing filter with corresponding tuning circuitry, and an analog-to-digital converter with possible error correction or self-calibration preceeding a digital signal processing block. The processed digital data is often then reconstructed into an analog signal by a digital-to-analog converter followed by an analog anti-imaging filter.

Highlights:

It was an industrial oriented project to develop skills of problem analysis and structuring, writing project and time plans, working in a group, creativity, oral and written presentation techniques, modelling, design, and evaluation of mixed-signal systems, design methodology, and writing requirement and design specifications. The outcome of the project work is an executable simulation model of an advanced mixed-signal processing system. This project deals with hybrid systems that employ both analog and digital signals. These systems are very complicated to design and model at the signal level as well as at the electrical level.

[www.asad.se/project/masters/msps.pdf]

Tools:

- Matlab
- AHDL
- Cadence Integrated design

08/2005 – 10/2005: Designing Digital Oscilloscope on FPGA

Description:

The project includes methods and tools for design and implementation of complex electronic systems, it emphasis the design process. VHDL is used to describe the digital system. Models using increasing levels of details has been built and mixed as well as test benches used to validate every new model. Programmable circuits such as FPGAs are increasingly used to replace ASICs as well as for verification of a design in advance of an ASIC manufacturing.

Highlights:

The focus of this Project is to design a system called digital oscilloscope that capable of interfacing with the VGA monitor an keyboard without using computer. The system receives analog signals, makes signal conversions and displays the digital signal on its own VGA monitor using the features of "XStend Board" produced by the "XESS Corporation". The system makes balance and volume controlling, signal freezing, and some processing on the signal according to the instructions sending from its own keyboard. *[www.asad.se/doc/masters/oscilloscope.pdf]*

Tools:

- Matlab
- FPGA Advantage
- VHDL

2003: Interactive tool for capturing, editing and sending pictures over mobile phone

Description:

Developed a GUI Interface, and its implementation of an "Interactive tool for capturing, editing and sending pictures over mobile phone" using Macromedia Director as Human Computer Interaction Techniques *[www.asad.se/project/masters/mobile.pdf].*