Date of Birth: **September 2010**

Mobile
E-mail : _____
_____
Web: _____

Education

[Sep.2007-present]
B.Sc. in Electrical Engineering-Electronics, university of Tehran, Iran
Overall GPA: 18.01/20
GPA of 6th semester: 19.13/20 (Electronic courses)

[Sep.2003-Jul.2006]
High school diploma, Imam Sadegh, Isfahan, Iran
Overall GPA: 19.88/20

Areas of Interest

Electronic Device

- Design and Fabrication of MEMS, NEMS, MOEMS
- Carbon Nanotubes:
  - Optical & Electrical Properties
  - Application in Emission Devices, Electrolysis and Nanolithography
  - CNT-Displays
- Nano-Scale Devices:
  - Physics and Fabrication Process
- Nanowire:
  - Physics and Fabrication Processes
  - Nanowire-Based Devices
- Photovoltaic Solar Cells
- Low temperature Silicon Crystallization
- Organic Nano-structures

Optics and Optoelectronics

- Photonic devices and Nano-structures
- Silicon Photonics
- Photonic MEMS devices
- Laser and Optoelectronics Devices

Biomedical Engineering

- Biomedical measurement
- Bio sensors
- BioMEMS

Honors and awards

• **Rank 3rd** among 40 Electronic engineering students, university of Tehran, 2007-2010
• My overall GPA is approximately **3 points above** the average GPA of electronic students in university of Tehran, 2007-2010
• **Exempt from M.Sc. university entrance exam as an exceptional talented student**.
• **Rank 410th** among approximately 300000 participants in the nationwide university entrance exam in Math and Physics, Iran, 2007
• **Rank 1st** in Imam Sadegh high school, Isfahan, Iran, 2003-2006
• Faculty of Engineering scholarship as an exceptional talented student, 2008, 2009, 2010
• Iranian government scholarship as an exceptional talented student, 2000-2006

Research and Practical Experiences

Thin Film Laboratory (TFL)

• *A comprehensive research about different methods of CVD deposition especially LPCVD for the purpose of improving the quality of deposition in LPCVD device*
Fall 2010, university of Tehran (new project)
Under supervision of Professor Seyyed Shamsedin Mohajerzade

Our laboratory has designed and constructed an instrument for LPCVD process. Now we want to know how we can have a High-quality deposition using this LPCVD instrument. Therefore, I am responsible for searching for different methods of entering gases, how to implement and use showers, the appropriate length for the main part of the LPCVD instrument and also, how we can reduce the turbulence of gases in the process lacuna. This is a new project and the results will be added soon on my website.

• *Design, Analysis and fabrication of MFC (Mass Flow Controller)*
Summer 2010, university of Tehran(Ongoing project)
Under supervision of Professor Seyyed Shamsedin Mohajerzade

Mass flow meters are one of the rudimentary devices which are being used widely in fabrication equipments. Their importance and wide-spread usage have led us to define projects to study the commercial MFCs and then construct a prototype as the first step. After that we are going to improve their performance by combining them with our structure which was established lately at research stage. In this project, we are going to fabricate different parts of a MFC in an innovative way. The most significant part of a MFC on which we can work for improvement is the flow sensor of MFC. Available MFCs use diverse methods for measuring the amount of flow which mostly need calibration for different gases. Alternative techniques such as using Venture and Pressure sensors or using Velocity sensors can eliminate the demand for calibration for different gases. The mentioned methods are basically on MEMS. We are also working on another part of MFC, its controlling unit which requires designing a digital circuit. I am working on both parts simultaneously.

• *Design, Analysis and Fabrication of Nano scale devices*
Summer 2010, university of Tehran
Under supervision of Professor Seyyed Shamsedin Mohajerzade

As we know, working in Nanoelectronic requires basic experimental knowledge in deposition, patterning and Etching processes .In internship project, I learned how I can carry out this basic processes. I studied diverse books and papers and worked with several equipments in Thin Film Laboratory such as PVD, LPCVD, Sputtering and Evaporating tools, Etching equipments and … The procedure of learning was done by fabrication of Nanoscale transistors.

• *Codifying a user manual for observing samples and Lithography using SEM instrument*
Spring 2009, university of Tehran
Under supervision of Professor Morteza Fathi poor

In this project, we authored user manual for observing samples and Lithography using SEM instrument. This user manual can guide any person who wants to work with SEM instrument step by step. It contains elementary settings of a SEM as starting step and then it will lead the user to use SEM for special purposes such as observing samples and Lithography. This manual has 2 parts. The first part introduces the basic concepts of internal parts of the SEM, also provides details about generating a concentrated electron beam. The second part instructs how to work with SEM instrument for observing and Nano-Lithography. It explains all of the tabs and windows which a user may want to use during his/her work with SEM, such as: Analysis and Measurement, Filament-HV-vaquum, Scanning window and etc. It describes the concepts of Speed, WD, magnification, Detector, Brightness, Astigmatism and etc and how to use them to have the desired picture of our sample.

• *Design and analysis of a high gain amplifier using BJTs and MOSFETs*
Fall 2009, university of Tehran
Under supervision of Professor Ali Afzali koosha

In this project, we designed an amplifier circuit with the desired gain and frequency response including BJTs and MOSFETs using PSPICE. We had a library of different transistors which contained their characteristics. By changing the structural characteristics of transistors in the library and designing the way they connected to each other and other basic parts of the circuit, we reached to the desired gain and frequency response. Simulation and analysis process was done using PSPICE.

Academic projects

• **Presentation on current and future prospects of Biosensors**, An introduction to bioengineering
• **Designing and implementation of XYZ modem**, Micro Processor Lab
• **Design of a wide spread software Using C/C++,** Fundamentals of programming course project
• **Measurement of Delay Parameters of an Inverter in CMOS Technology,** Digital Electronics
• **Measurement of Time Parameters for Carry Generator Circuit in CMOS Technology,** Digital Electronics
• **Simulation of a 4-Bit Full Adder in Transistor Level Using Verilog HDL,** Digital Electronics

• **Measurement of Setup Time and Hold Time in Static Latch,** Digital Electronics
• **Designing a wideband CMOS Telescopic Folded Cascade Operational Telescopic Amplifier (OTA)**, using HSPICE, electronic II course project
• **Designing a CMOS Telescopic Cascade OTA and Simulating its performance as a sample and hold circuit**, using HSPICE, Electronics III course project
• **Designing a High-Gain CMOS Compensated Fully-Differential Two-Stage OTA**, using H-SPICE, Electronics III course project
• **Design and Implementation of Radio Controlled Robot,** Industrial Electronic
• **Designing and building an air temperature adjusting system**, Micro Processor lab
• **Implementation of a Ball Radio Controlled Robot,** General Workshop course project
• **Simulating different methods of electrical machine braking,** using SIMULINK, Electrical Machines

Practical Experiences

During my activity in Thin Film Laboratory, I have acquired expertise in:

• *Methods of RCA and wafer cleaning*
• *Methods of oxide growth*
• *CVD deposition*
• *Mask producing and reduction*
•*Evaporation systems (EBeam, Thermal)*
• *Methods of Si and SiO2 Etching*
• *Working with Thermal and Field emission SEM instrument For Observing and Nano-Lithography(EBL)*
• *Lithography*
• *Sputtering*
• *RIE*
• *Methods of Diffusion*

Computer Skills

• **Platform**: Windows, DOS(expert),Linux(familiar)
• **Electrical and Electronic Engineering software**: Simulink, Hspice, Pspice, Quartes, Modelsim, Codevision, Protel, Proteus(expert)
• **Programming** : Matlab, C++, Fortran, Assembly language of 8081 and 8086 families(expert)
• **Other**: Microsoft Office(expert), Adobe Photoshop

Teaching Experience

Teaching Assistance
Spring 2010,"Electronic I", ECE department
Spring 2010,"Computer architecture", ECE department
Fall 2010,”Electronic I and II Laboratory ”, ECE department
Fall 2010,”Microprocessor ”, ECE department

Fall 2010,"Signals and systems", ECE department
Fall 2010,"Electronic II ", ECE department

Language skills

English: Fluent
TOEFL Score: 95 (R:25 L:24 S:22 W:24)
Persian: mother tongue
Arabic: familiar

Relative courses

An introduction to Bioengineering(Optional)
Fundamental of Quantum Physics(Graduate course) *Next semester*
Transistor Fabrication laboratory(Optional)
Nano Technology and Nano Electronics(Graduate course) *Next semester*
Fields and Waves(Optional) *Next semester*
Electronic I,II,III
Solid state
Modern physics
Digital electronics
Industrial electronics