

August 2011
Curriculum Vitae

Ali Alimardani

Personal Information:

Surname: Alimardani
Name: Ali
Gender: Male
Marital Status: Single
Nationality: Iranian
Date of Birth: August, 15, 1985
Address: 7th unit, No.61, Kaj St., South Taleghani Ave., Karaj, Iran
Phone: +98 9122640336
Homepage: <http://nanolab.ut.ac.ir/CM/Alimardani.htm>
E-mail: ee.a.alimardani@gmail.com
a.alimardani@ece.ut.ac.ir

Objective:

Pursuing PhD Degree

Education:

Fall 2008 – July 2011 **University of Tehran** **Tehran, Iran**
M.Sc., Semiconductor Devices, Electronics, Electrical Engineering
Thesis: *Simulation of High Concentration Solar Cells.* (score: 19.5/20)
Advisors: *Prof. Ali Afzali-Kusha, Prof. Ebrahim Asl-Soleimani*
GPA: 18.08 /20

Note: [University of Tehran is the earliest, largest, and highly prestigious university of Iran.](#)

Fall 2003 – Oct. 2007 **Amirkabir University of Technology** **Tehran, Iran**
B.Sc., Electronics, Electrical Engineering
Thesis: *Design and Hardware Test of Digital Controller and Monitor of Dram Level in Combined Cycle Unit of Karaj's Power Plant.* (score: 20/20)
Advisor: *Dr. Amirhossein Rezaie*
GPA: 15.91/20

Note: [The Mother of Engineering Universities in Iran](#)

Fall 2002 – May 2003 **NODET Pre-University institute** **Karaj, Iran**
Pre-University Certificate in Mathematics and Physics.
GPA: 18.66/20

Fall 1999 – May 2002 **NODET High School** **Karaj, Iran**
High School Diploma in Mathematics and physics
GPA: 19.2/20

Note: [NODET \(National Organization for Development of Exceptional Talents\)](#) is developed specifically for the development of exceptionally talented students in Iran.

Research Interests:

- Silicon Solar Cells, Simulation and Modeling in Different Light Concentrations.
- Thin Film Solar Cells with Different Materials.
- CIGS Cells, Simulation of them and Studying the influence of the Important Factors on their Efficiency.
- GaInP/Ga(In)As/Ge Hetrojunction Cells and Simulation of them in High Concentration of Light.
- Simulation of Organic Cells.
- Nano-MOS Transistor, Modeling and Simulation.
- Simulation of Non-ideality in MOS transistors.
- Modeling and Simulation of Threshold Voltage and Current leakage in MOS Transistor.

M.Sc. Courses:

Semiconductor Devices
Quantum Mechanics
Solid State Physics
Nano Devices and Their Integration
Nanotechnology and Nanoelectronics
Opto-Electronic Devices
SOI Devices and Circuits
Low-Power Integrated Circuits

Research Experience:

Oct. 2009 – Present

University of Tehran

Research Assistant, *Low-Power, High-Performance, Nano-Systems Laboratory*

Advisor: *Prof. Ali Afzali-Kusha*

<http://nanolab.ut.ac.ir>

- Silicon Solar Cells I-V Modeling.
- Silicon Solar Cells Using in High Concentration of Sun Light.
- Effect of Lateral Current and Voltage Distribution in N-type Diffused Emitter Region for Concentrator Solar cells.
- Different Methods of Extracting Series Resistance from I-V Curves in Solar Cells.
- Optimization of Metal Contacts Grid for Solar Cells.
- Multi Junction Solar Cell.
- Tunneling Junction Diodes to Use in Multi Junction Cells.
- Advanced Material Using in Solar Cells.
- Effect of Changing the Percentage of Ingredient of Alloys in their Bandgaps and Lattice Constants.
- Simulation of CIGS/CIS Solar Cells.
- Studying the Effects of Important Factors on the Efficiency of CIGS/CIS Solar Cells.

- Modeling of I-V and Capacitors of Double-gate MOSFET transistors.
- Defining Fowler-Nordheim Tunneling Current for Flash Memories.
- Using Nanocrystals in Flash Memories.
- Gate Leakage Reduction by Circuit Techniques in CMOS Technology.
- SOI Devices and Circuits Usages and Restrictions.
- FinFET Devices I-V Modeling.
- Multi-gate MOSFETS.
- Carbon Nanotubes Electronic Structures.
- Advanced MOSFET I-V Modeling.
- Low Noise and Adjustable High Gain Amplifier Using Opamps.
- RFID Sender and Receiver (Tag and Reader), Coding Algorithms and Applications.
- Mifare Cards, Data Structures and Designing Hardware for Reading and Writing on them.
- Secured Access Module (SAM) Cards, their Method of Working and APDU Protocol for connecting them.
- ARM9 (2440) and ARM11 (6410) Microcontrollers, Working with their USART, LAN, USB Host & Device, Color Touch LCD, ADC, etc. Using Embedded Operating Systems.
- DSP Processors Including TMS54xx and TMS55xx.
- USB Data Transfer Protocol and HID mode (Human Interface Devices).
- Data Transmission Protocols Embedded in Microcontrollers.
- Fundamental of Fuzzy Controllers.

Accomplished Projects and Term Papers:

- Advances in Solar Cells.
- Different Structures of Carbon Nanotubes.
- Modeling of Potentials and Threshold Voltage for Symmetric Doped Double-gate MOSFETs.
- Using Nanocrystals in Flash Memories, Bandgap Engineering and F-N current.
- FinFET Devices, Structure and I-V Modeling.
- Circuit Techniques to Reduce Gate Leakage Current.
- Design and Hardware Test of a Phase Difference Simulator Using Atmel Atmega16 Microcontroller and Two 12bits DACs.
- Design and hardware Test of Auto Gain Controller Using Atmel Atmega16 Microcontroller, Opamps and Analog Switches.
- Design and Hardware Test of IR Code Transmitter and Receiver Using Atmel Attiny2313 Microcontroller.
- Design and Hardware Test of Wireless Communication Board for Two PCs Using RF Modules through COM Ports with GUI Made in LABVIEW.
- Design and Simulation of AVR Microcontrollers' Communication with MMCs in SPI Mode.
- Design and Hardware Test of Controller of Solar Cell Charger Using Atmel Atmega32 Microcontroller.
- Design and Hardware Test of Digital Controller and Monitor of Dram Level in Combined Cycle Unit of Karaj's Power Plant as BSC's Final Project.

Honors:

- Ranked **1st** among Graduates of Electronic Engineering in Amirkabir University of Technology in **2007**.

Publications:

- A. Alimardani, N. Manavizadeh, A. Afzali-kusha, E. Asl Soleimani, "Simulation of Lateral Effect in Emitter Region of Silicon Solar Cells for Concentrated Sunlight," Proceeding IEEE International Conference 12th. Int. Conf. on Thermal, Mechanical and Multiphysics Simulation and Experiments in Microelectronics and Microsystems, EuroSimE 2011.
- A. Alimardani, M. Noei, E. Asl-Soleimani, A. Afzali-kusha, "Simulation and Optimization of CIGS Solar Cells in Concentrated Sunlight," Proceedings of the ISES Solar World Congress 2011, Kassel, Germany.
- A. Alimardani, E. Asl-Soleimani, A. Afzali-kusha, "Simulation and Optimization of Emitter Depth and Doping for Silicon Solar Cells under Concentrated Sunlight," Proceedings of the ISES Solar World Congress 2011, Kassel, Germany.
- A. Alimardani, A. Afzali-kusha, E. Asl-Soleimani, "Simulation and Optimization of $Ga_xIn_{(1-x)}P$ Cells for Concentrated Sunlight," accepted for publishing in 26th European Photovoltaic Solar Energy Conference 2011, Hamburg, Germany.

Computer Skills:

Programming Languages:

MATLAB, C, C#, Pascal, Delphi, 8085/8086/8051 Assembly Language, AVR C, PIC C.

CAD Tools and Simulators:

Silvaco ATLAS Device Simulator, Synopsis Sentaurus Device Simulator, PC1D Solar Simulator, ORCAD, AVR Studio, Proteus.

Other Electrical Engineering Softwares:

Codevision, CCS, Proteus, LABVIEW, FuzzyTech, Protel DXP.

Operating Systems and Microsoft Office:

Windows, UNIX, MS-DOS, Word, Power Point, Excel, Front-Page.

Industrial Work Experience:

Mehad Sanaat Shargh (<http://www.mehad.ir>)

Winter 2011- present

- Working on making Disassembler for TMS54 and 55 Series.
- Design and Hardware Test of Circuits for using ARM11(6410) in Embedded systems.
- Design and Hardware Test of Contactless Reader with ARM11(as a Core Board), RFID Modules and SAM Modules for Ticketing System for Tehran Urban & Suburban Railways.

- Design and Hardware Test of Photodetector Circuits and its Amplifier for Sensor of Oxygen Measuring Device.
- Design and Hardware Test of an Interface Card for Send, Receive and Monitoring of Data with Ability to Connect in SPI and USART Mode with Keypad and LCD Display Using Atmel Atmega128 Microcontroller.

Araz Time Management Systems (<http://www.araz-tms.com>) Spring & Summer 2008

- Design and hardware Test of USB Interface in HID Mode Using Microchip PIC 18lf4550 Microcontroller.
- Design and Hardware Test of RFID Reader Using PIC Microcontrollers and Analog Circuits with Ability to Save Events, Dates and Times form RTC.

Teaching Experiences:

- Teaching Mathematics and physics for the high school students.
- Teaching AVR Microcontrollers, Protel DXP, Logical Circuits and Circuits I in private classes.

Extracurricular Activities and Interests:

- Playing Badminton, Ping pong and Futsal, Traveling, Cooking, Music, Movies, Reading Persian Literatures and Psychological Books, Economic Activities.

Language Proficiency:

National Languages: Native speaker Persian, Fluent in English and familiar with Arabic.

References:

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| ▪ Prof. Ali Afzali-Kusha | <i>Professor</i> | University of Tehran | afzali@ut.ac.ir |
| ▪ Prof. E. Asl-Soleimani | <i>Professor</i> | University of Tehran | soleimni@ut.ac.ir |
| ▪ Prof. A. Rezaie | <i>Assistant Professor</i> | Amirkabir U. of Tech. | rezaie@aut.ac.ir |