

Personal Information

Name: Alireza
Family Name: Ahadpour Shal
Marital Status: Married
Cell: +49 157 5344 0502
+49 159 06333 4676
Address: Hanau, Germany
Email: alirezaahadpour@yahoo.com
Linkedin: www.linkedin.com/in/alireza-ahadpour-shal



M.Sc. Electronics & M.Sc. Communications Engineering

I have nearly 20 years of experience in field of electronic circuit design and development. My activities have been involved from pre-study to development and then up to mass production support. My responsibilities have been requirement breakdown, architectural design, safety analysis, HW-SW interface definitions, Schematic and PCBA design, component selection, foot print optimization, performing FMEA and FMEDA, test and verification in HW and product level, mass production support, technical discussion with different project teams and suppliers, etc. Most of developments have been performed in Agile method combined with V model development.

Briefly saying in recent years, I have been working as senior HW developer for development of various PCBAs for safety, control and management of batteries for consumer electronics (Husqvarna) and automotive industries (FEV). Beside mentioned experience, I have also worked in the past as lecturer, teaching analog and digital electronic circuit design. I have also worked as consultant and HW developer in other branches of industry.

After all these amazing professional journeys, I am now ready for new challenges in my professional career, to work with a professional team in your first class company to continue my journey in automotive battery electronics and PCBA design and development.

I believe by applying all my past experience and knowledge, not only I can help your team to perform faster and better, but also, I can fulfill my desire of having more share on development of clean E-mobility developments and improve myself for better.

WORK EXPERIENCES

From June 2021

Senior and lead HW Developer - Gardena Manufacturing GmbH, Husqvarna, Karlstein am Main, Germany (HVA)

Tasks:

- BMS design for battery applications
- Design according to requirements, standards, safety concepts, Battery product mass production and tooling requirements, cell specs, ...
- Helping system engineer defining high level requirements
- HW level requirement definition
- HW Architecture definition, HW description and HW-SW interface definition
- Optimization of power consumption and mode definition
- Performing FMEDA, MTTF
- Circuit design and review
- PCBA design and review for other project teams
- E-BOM preparation and optimum and multi-source HW component selection, adding Symbols and foot prints to data base and working closely with component engineers and sourcing team
- Technical debate with IC suppliers, EMSs, and other business units
- Close cooperation with SW and Mechanical design team to have the best fit design for the system
- Test and verification of BMS HW and Batteries packs
- Preparing HW test plan in development phase, PTS for PCBA mass production, and helping to define required instrument and test setup for automated test system for EOL testing
- Help T&V team for battery level testing
- Documentation according to company process and format
- Providing mass production output file, End of line testing and technical support outputs for industrialization team and extremal suppliers
- Technical support for other teams like test and automation team, quality team, Pre-study team, prototype technicians, HW-LAB development, new colleague trainings, ...

Technical

Highlights:

- V, I, T, motion sensing, EMI and filtering, clamping and transient protection, MOSFET and MOSFET driver circuits, Relays, SPI, UART, CAN physical interface, Cell balancing, AFEs, SPFs, DCDC converters, MCUs, EEPROM, ...
- OrCAD CS and PCBA design, Lt-spice, various documentation tools, process-based working (Jira, PLM, office tools)
- Robotic professional batteries and E.V. wheeled products batteries

Feb. 2020 – May 2021

HW Senior Project Engineer - Brunel GmbH, Project work at FEV Europe GmbH, Aachen, Germany (FEV)

Projects A:

Project Engineer at Automotive Battery Systems Department

Tasks:

- Conduct reviewing **4 automotive** high voltage battery projects as HW review engineer.
- Review and partial design of electric vehicle battery systems including Battery Management Units, Cell Monitoring Units, and power distribution unit. (CMU, BMU/BMS and PDU)
- Design and review of I-V-T measurements, CAN communication unit, CMU, BMS, PDU, ...
- Preparation of documents based on ISO26262 according to chapter 5, hardware development, as well as cooperation with FUSY team to perform FMEDA and FMEA
- Close contact with design team for EE and 3D routing, lay outing inside battery

Project B: Architect Eng. at EE department for development of an electric vehicle

- Tasks:**
- EE-BOM management of EE department and control of consistency of EE BOM with 3D packaging of the parts in car
 - Using In-Step as well as Team Center tools to manage EE BOM, part documentation, structure management, assembly management and versioning based on software, ...
 - **Sub-management** and close cooperation with EE CREs to assure the consistency of EE topology and circuit with BOM.

Oct. 2018 – Feb.2020

Hardware Pre-development Engineer - Brunel GmbH, Project work at [Auto-Kabel GmbH](#), Monchengladbach, Germany (AK)

- Tasks:**
- Predevelopment of new electronic products for automotive safety
 - HW development project management (QCT)
 - Circuit design, selection of components, PCBA design
 - PCBA prototype production and assembly
 - Provision and performing of the HW tests
 - Reports, documentation and researches
- Technical Topics:**
- Current separation and isolation units, activation and control of semiconductor switches
 - MOSFETs and Smart MOSFETs
 - Data transmission units: LIN, UART, CAN physical interface
 - Standards and specification-based design and lay outing
 - Current and voltage measuring circuits
 - galvanic and optical isolation
 - FIT Rate Calculations
 - Tools: Altium, Lt-spice, MS Office ...
- Invention Registration**
- 1-"Electronic Over Current Fuse"
 - 2- "Electronic ATO Fuse"
 - 3-"Car Brain's supply in board net 4.0"

Sep.2017 - Dec. 2017

Oct. 2016 – Mar. 2017

Research assistant and internship - Energy Technology Department, [Aalborg University](#), Esbjerg, Denmark (AU)

- Tasks:**
- Design, Simulation, Implementation, Test and Measurement,
 - Research and Publication
- Technical Topics:**
- Implementation, Smart control, Power management and regulation of a (48V) DC Micro Grid test bed (PV, PEV, Storage, DC EL, ACG simulator, power supply, et)
 - IoT (hardware, software and infrastructures)
 - Wireless technologies
 - Modular multi-level convertors
 - Sensors, Optical fibers, Optical isolation
 - Tools: dSPACE MicroLabBox, MATLAB and PLECS

Sep. 2006 - Oct. 2014

Feb. 2018 - Sep.2018

Lecture and Academic Member - Islamic [Azad University](#) (LIAU), Lahijan, Iran.

- Tasks:**
- Teaching, Presentation, Thesis Supervision, Research and Publication
 - Educational Administration

Teaching	➤ Design and Analysis of Analog Electronic Circuit I, II, III
Topics:	<ul style="list-style-type: none"> ➤ Analog Electrical Circuit I, II, ➤ Basics of Digital Circuit Design ➤ Technical English, Electronic Lab, and PLC Lab ➤ Five professional research projects ➤ Supervision of more than 150 BSc theses
Professional research and projects:	<ul style="list-style-type: none"> • “Analysis and Modeling of WDFB Laser with Three Rate Equations Model”, (LIAU) • “Synthesis and Characterization of Fe₃O₄, ZnO and Fe₃O₄-ZnO Core-Shell Nanoparticles”, LIAU • “Analysis and Circuit Modeling of High Speed APDs”, LIAU • “Design of Low-Voltage and Low-Power Amplifier Utilizing Bulk Driven Technique and Its Application in Active –RC Filters”, LIAU • 6 journal papers and 13 international conference papers
Others:	<ul style="list-style-type: none"> ➤ <u>Head of Electronic Group</u> for near 3 years at Electrical Engineering Department at LIAU with 6 administrative staff, more 25 lecturers and professors, and 1500-2000 BSc students ➤ Awarded as the best lecturer at LIAU in 2009

Sep. 2008 - Sep. 2012

Senior Electronic Engineer & Consultant (Part time) - **Azaran Kavosh Shomal**, Rasht, Iran (AKS)

Tasks:	<ul style="list-style-type: none"> • Project management, consultation, • Design, Implementation, Test & Repair
Technical	➤ Digital measurement and testing circuit and system design
Topics:	<ul style="list-style-type: none"> ➤ AC and DC motor drive system ➤ Embedded system with microcontrollers and CPUs ➤ LED panels
Others:	<ul style="list-style-type: none"> • Recognized as Professional Electronic Engineer, by ANZSCO, Engineering Assessment Organization, Australia

Sep.2005 – Mar.2006

Electrical Engineer (Part time) - **Nour Gostar Shams Khazar** Rasht, Iran (NGSK),

Tasks:	<ul style="list-style-type: none"> • Sales & Marketing • Installation & Test
Technical	➤ UPS and Battery charging systems
Topics:	➤ Biomedical instruments

Jul.2005 – Sep.2006

Electronic & Hardware Engineer - **GIC GmbH**, Aataneh, Iran (GIC)

Tasks:	<ul style="list-style-type: none"> • Sales, Assembly
Technical	➤ Consulting customer to buy a PCs
Topics:	<ul style="list-style-type: none"> ➤ PC assembly, Software Installation ➤ Guarantee of the PC Systems

Oct.2003 – Oct.2004

Market Research Project Supervisor - **JMR GmbH**, Tehran, Iran (JMR)

Tasks:	<ul style="list-style-type: none"> • Supervising and managing Different product market research project
Topics:	<ul style="list-style-type: none"> ➤ Customer consultation, definition of research method, and localization of questionnaires ➤ Validation of reports ➤ Project control ➤ <u>Management of more than 30 questioners</u> in market research team

SKILLS

* Basic

** Acceptable

*** Good

**** Very good

HW Skills

- PCBA-Design OrCAD, Altium Designer, Eagle ****
- Simulation MATLAB – Simulink ***
- Circuit verification Lt spice, PSPICE, EWB Multisim, Proteus, etc. ****
- Sensors Current, Voltage, Temperature, Acceleration, hall effect, infra-red, Vibration, Gas, Movement, Distance, etc. ****
- Circuit & System Level Design Battery EE lay outing and circuit, BMS & CMUs, MCUs, AFEs, Digital and analog ICs, MOSFET, Relay, power amplifiers, Controller Design, DC-DC convertors, Optical and galvanic isolation, Solar panel, DC Micro grids, etc. ***
- Data communication protocols CAN, LIN, Optical RX- TX, SPI, UART, SPI, Wireless and Power line communication. ***
- Instruments Different Measurement and analysis Instruments ***
- Programmable devices ATMEG. dSPACE, Programmable power supplies and electronic loads, Battery Simulator, etc. ***
- Multidisciplinary **Electronic + Power Electronic + Communications + Semiconductor Devices**

Software

- Digiall working tools ***
- Windows, MS Office, etc.: ***
- Digital working environments ****
- C : **
- C++ : *
- Assembly : **

Languages

- English : ****
- Persian : ****
- German : ***

Others

- Driving licence B

EDUCATIONS

2014-2018

M.Sc. Electrical and Communications Engineering

RWTH-Aachen University, Aachen, Germany

GPA :1.7

Thesis: Design, Simulation and Implementation of a Smart DC Microgrid

Study Focus: Communications systems and power electronics

- Erasmus-Fonds für Forschungspraktikum an der Aalborg Universität, Dänemark 2016

- Ausgezeichnet mit dem Bildungsfonds-Stipendium der RWTH-Aachen für 2015-2016

2002-2005

M.Sc. Electronics Engineering

K.N. Toosi University of Technology, Tehran, Iran

GPA: 1.8

Thesis: Modeling of poly Si TFT Applicable in AMLCDs

Study Focus: Semiconductor device and circuit technology

1996-2001

B.Sc. Electrical and Electronic Engineering

Amir Kabir University of Technology, Tehran, Iran

GPA: 2.1

Thesis: Design and Fabrication of Numerical Text Reader

Study Focus: Analog and digital electronic circuits and systems

TRAININGS

- More than 70 different technical and soft skill development trainings and workshops at HVA, FEV, AK, LIAU, AU

SOCIAL ACTIVITIES

- Active member, public relations at INCAS student organization at RWTH-Aachen (2015-2016)
- A member of Nano-electronic group at LIAU (2011)
- A member of Tilar mountaineers' group in Iran (2006-2007)
- Gym, Cycling, Walking, Music, Movies, Playing different group games