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Education

- 2007 – 2011, B.Sc. Computer Hardware Engineering
  - Babol University of Technology, Babol, Iran
  - GPA: 17.07 out of 20
  - Thesis: Designing and implementing an elastic C++/FORTRAN virtual cluster under Linux
- 2012-2015, M.Sc. Electrical/Telecommunication Engineering
  - Babol University of Technology.
  - GPA: 17.06 out of 20
  - Thesis: A novel approach in identifying and removing random value impulse noises from digital images in MATLAB.

General Interest

- Embedded systems design.
- Embedded Software Development.
- RF and Digital communication system design.

Honors and Awards

- • Full scholarship award for Ph.D. in Aero-Space Engineering. York University, Canadian Space Agency (CSA).
- • Full scholarship award for Master of Science. Babol University of Technology, IRAN.
- Top 2% class honor. (B.Sc.)

- Member of Olympiad team in Iran National University Students' Olympiad in Computer Engineering.

Language

- English: Fluent
    - IELTS Certification. (Band Score 7.0)
- Persian (mother tongue)

Work Experience

- April 2009 to 2014: Roshd Center (Babol University, Business incubator).

  In Roshd Center, as a group of highly talented student, we were designing and implementing various types of projects for different university departments. For example, Department of electrical engineering asked us to design and implement a parallel computing MATLAB system using commodity hardware. The result was a Beowulf Cluster.

  Role: C/C++ Software Developer.

  Projects:

    - Design and Development TCP client/server software for climate data monitoring.
        - This projects was implemented in department of electrical engineering in order to prepare a simple climate monitoring system.
        - Project contains two parts (data logger and monitoring software).
        - Data Logger was implemented with AVR MCU.
        - Monitoring System was implemented in Java.
        - My role: Reading sensors information (Temperature, Barometer, and humidity sensors with different protocols (I2C, SPI)) and sending via UART to the monitoring software.
        - Number of team members: 5 People.
    - Design and implementation of Parallel MATLAB cluster (Department of Electrical Engineering, Babol University of Technology).
        - Goal: Department of Electrical Engineering need a high-performance computing MATLAB environment for graduate students. We have 32 PC and we should make a parallel computing cluster.
        - My Role: Design and implement benchmark application in MATLAB in order to test the performance of the cluster.
        - Number of team members: 4 people.

- Design and implementation of FORTRAN virtual cluster (Department of Industrial Engineering, Babol University of Technology).
    - Department of Industrial Engineering need a high-performance parallel computing environment for graduate students. They use Finite Element methods which require lots of processing resource. A single PC was not enough. They gave us 16 PC to build a high-performance cluster.
    - My role: Designing and implementing benchmark application to test cluster (C Codes).
    - Code size: ~1500 lines.
    - Number of team members: 4 people.
    - State of project before me: New project.
- Design and implementation of C++/FORTRAN distributed environment (Department of Computer Engineering, Babol University of Technology).
    - As the aforementioned projects. This time, Dept. of Electrical engineering needs a high performance parallel computing cluster for graduate students.
    - My role: Design and develop benchmark code in C/Fortran language.
    - Code size: ~1500 line
    - Number of team members: 4 people.
    - State of project before me: New project.

- 2014 to Sep. 2016: **PDS Co**. (Focus on design and implementation of robotics systems)**.**

PDS Co. is a research center which its focus is on the design and building robotic systems. Specially, under water robots.

Role: Embedded Software Developer.

Projects:

- Hardware and Software in the Loop (HIL, SIL) simulation software for Remotely Operated Underwater Vehicle (ROV) (C/C++, QT).
    - Goal of the project: Designing and building a new HIL/SIL simulation software.
    - Description: A HIL/SIL software is a simulation software which allows engineers to apply Verification and Validation (V & V) process on the developed embedded software.

- My role: Developing a new HIL, SIL Software. There was an outdated HIL/SIL software which was developed in Borland C++. My Task was rewriting the whole software in QT.
- Number of team members: +15 people.
- State of project before me: There was a team working on old software. After I've jointed to the project. The new software started.

- Design and development of a Dynamic Simulation Unit (DSU) for ROV (Linux, QT).

  Description: A DSU is a software which simulates the natural environment for an embedded system so that the embedded software thinks it is working in natural environment.

  - My role: Designing a DSU based on parameters and formulas given by control engineers.
  - Number of team members: +15 people.
  - State of project before me: There was a team working on old software. After I've jointed to the project. The new software started.

- Design and development of Remote Command Control System (RCCS) in QT under Linux.

  Description: A RCCS is a software which allows operators to work with a ROV. This software sends command data to the ROV and display results.

  - My role: Designing a User Interface for RCCS software in QT.
  - Number of team members: 5 peoples.
  - State of project before me: New project.

- Deployment of a hard-real-time Linux based OS on Vortex-X86. (Redhat Linux).

  Description: This is a R&D project. Our ROV uses MS-DOS as a real time operating system. In this project a Real Time Linux was installed on the Motherboard to compare the performance of Real Time Linux with MS-DOS.

  - My Role: Customizing and porting RT-Linux on Advantech Vortex-X86 industrial motherboard.
  - Number of team members: 2 people.
  - State of project before me: New project.

- Design and implementation of real time ARM based data logger (STM32F103).

Description: In order to analyze the performance of the ROV. Our engineering team required exact data of sensors and actuators output. For example, the speed, acceleration, GPS data, motor speed, etc… We designed a real time data logger which stores data in Flash memory and also sends important data to the monitoring software.

- My Role: Designing and developing data logger core application.
- Number of team members: 3 people.
- State of project before me: New project.

- Design and implementation of GSM Telemetry Data Link.

  Description: After designing data logger system. We have needed a medium to send data to the monitoring software. We've chosen GSM mobile network to send data using GPRS TCP/IP Link

  - My Role: Developing an interface for GSM module (SIM 900) and customizing the data logger to work with this module. Designing and developing monitoring software in QT.
  - Number of team members: 3 people.

- Design and implementation of 7W UHF Telemetry Data Link.

  Description: For long distance communication in sea, GSM network is not useful anymore. We've needed a data link to send data over 20kM. As a telecom engineers I've made a Telemetry Data Link prototype module by using commodity device based on SDR.

  - My role: Hardware designer.
  - Number of team members: 3 people.

- Aug. 2016- Present: **TOSAN Techno**. (Banking, Payment and Retail Solutions Provider).

  TOSAN Techno is the leader and the largest suppliers of banking and payment solutions for Iranian banks and payment companies. TOSAN Techno supplies EFT-POS terminal equipment, payment switch, software applications including payment applications, TMS system, and acquiring management systems. TOSAN Techno banking solutions includes ATM machines, ATM Recycler machines, VTM machines, Cash In machines, Cashless machines and related applications, ATM monitoring system.

  Role: Embedded Software Developer.

  Projects:

- Design and implementation of Electronic Payment System (EPay) for Petrol and CNG station (Embedded Linux, ARM Cortex A7).

  Description: Petrol stations in Iran use traditional payment methods (Physical cash) for paying cost of fuel. We have designed an Electronic payment system for Petrol/CNG stations.

  - My role: Porting and customizing payment application on new Pax PX7 ARM 11 hardware. Designing a dedicated protocol for communication between Fuel dispensers and Payment hardware. (We have a basic payment application. I must customize it for different use cases).
  - Number of team members: 3 people.
  - State of project before me: New project.

- Developing Petrol Station Simulator (C++, QT).

  Description: After developing EPay (previous project) our clients needed a Petrol Station simulator to test and customize their software and hardware.

  - My role: Design and development a Petrol station simulator in QT.
  - Number of team members: 1 people.
  - State of project before me: New project.
  - Code size: ~2,000 lines.

- Developing Application Programming Interface for DSG4500 Embedded Cashless (C/C++, Embedded QT).

  Description: One of our clients need to deploy our payment application for a device from another company. The hardware and the programming interface of the DSG4500 is completely different from PAX products. So, we were required to develop a new hardware API and merging it with our payment application.

  - My Role: Design and development of new hardware API.
  - Number of team members: 2 people.
  - State of project before me: New project.

- Developing Payment Application for DSG4500 Cashless (C/C++, Embedded QT).

  Description: After developing hardware API. We should customize and port our payment application on DSG4500 based on client need.

  - My role: Porting and adding new feature to the traditional payment application. Designing new UI in QT.
  - Number of team members: 2 people.

- State of project before me: New project.

- Developing Recipe Generator Software for PAX™ Point of Sale (POS) devices. (C/C++, QT).

  Description: A recipe generator is piece of software which generate recipe for POS devices. There was an old software with limited capability. Our clients need a new software with new feature and better UI.

  - My role: Design and development new recipe generator software.
  - Number of team members: 1 people.
  - State of project before me: There was old working software.

Publications

1. Rahimi J, Aghagolzadeh A. "A new method for identifying and removing salt and pepper impulse noises by using weighted contra-harmonic fuzzy filter", The 9 th Symposium on Advances in Science and Technology (9thSASTech), Mashhad, Iran, 2014
2. Rahimi J, Aghagolzadeh A, "A new modified directional weighted median filter for random value impulse noise removal", 2nd International conference on pattern recognition and image analysis (IPRIA2015), Guilan, Iran, 2015.

Computer and Software skills

- Good experience with:
  - General Software such as: MATLAB, Latex
  - Spatial package such as: QT, Eclipse, Keil Workbench.
  - CAD and simulation software: Altium PCB designer, National Instrument circuit design suite, Proteus circuit simulator.
  - Embedded Tool-Kits: Buildroot, Yocto, Cross-NG.
- Programming Languages:
  - C/C++, MATLAB.
- Operating Systems:
  - 10 years' experience in Linux based OS.
  - 14 years' experience in Windows based OS.

Hardware skills

- ARM Cortex M Series (STM32 and STM8)

- ARM Cortex A20 (Cubieborad 2, Raspberry Pi, Orange Pi, PINE64)
- Vortex-X86-PC104 Architecture (Advantech Industrial Motherboards)
- Altera Cyclone IV FPGA Series.

References

- Professor Ali Aghagolzadeh (aghagol@nit.ac.ir)
- Prof. Mojtaba Valinataj (m.valinataj@nit.ac.ir)