REZA ASLANZADEH

Laurentian University, 935 Ramsey Lake Rd. Sudbury, ON P3E 2C6
Phone: 647-225-8370 | **Email:** aslanzade@gmail.com |**LinkedIn:** linkedin.com/in/raslanzadeh

COMPUTER VISION ENGINEER & EMBEDDED DESIGNER

Multi skilled computer vision engineer and Image Processing specialist and also an embedded designer with more than 10 years of experience in real world problem solving. Expert in different Computer Vision and Image Processing fields such as; Object detection and recognition, target tracking, segmentation, reconstruction, camera calibration, video and image signal processing, and design and implementing algorithms for low power embedded processing.

TECHNICAL SUMMARY

Languages:	C, C++, MATLAB, C#, Python, Java, JavaScript, HTML5, CSS3, PHP, ASP.NET, VHDL, Linux Shell Script, LATEX, JSON, YAML, XML
Libraries:	OpenCV, TensorFlow, Keras, Pillow, Scikit-Learn, Pandas, Matplotlib, NumPy, SciPy, .Net Framework, .Net Core 2.2, POCCO, Gstreamer, ffmpeg, Rest API, SOAP
Embedded:	Kernel programming, Yocto, Buildroot, Using Embedded boards base on Intel atom and ARM, Using IO (GPIO, I2C, Speed Radar Sensor, RFID antenna, …), Using industrial cameras in computer vision applications, designing software to work real time on a board
Platforms:	Linux, Windows, Windows Server
IDEs, Editors:	PyCharm, NetBeans, Microsoft Visual Studio
Tools:	Git, SVN, Repo, Docker, Jupyter Notebook, Weka, Matlab Image Processing, Toolbox, GitLab CI/CD
Databases:	MySQL, Microsoft SQL Server
Development:	Agile Software Methodologies, Scrum, UML and RUP with Rational Rose suite, Rational XDE, Requirement engineering in software development

PROFESSIONAL EXPERIENCE

ITS department Product Manager & Team Lead	December 2017 – Present
Samim Rayaneh Co. (samimgroup.com)	

Leading ITS (Intelligence transport system) team and managing ITS products development process. In our team, we had 7 developers with different skills (Hardware Designer, VHDL Programmer, Mechanical Designer, Embedded Designer, Web Designer, Computer Vision Engineer). During my management period various improvements occurred;

- Decreasing BOM (bill of materials) cost of main product (Smart Camera) while increasing stability and performance in two major phases. A) Decreasing 60% from 1000 USD to 400 USD. B) Decreasing 20% from 400 USD to 320 USD.
- Adding several new features such as WIFI, LTE, GPS, Live browser view, etc.
- Improving product control-panel UI/UX by converting PHP pages to SPA using modern technologies, JS libraries; decreasing 30% of resource usage for UI.
- Increasing the processing speed of our main product up to 20% faster by enhancing our algorithms.
- Improving “Continues Implementation”/ “Continues Development” cycle as adding automatic black box test in development life cycle.
- Upgrading development skills of junior members by mentoring and code reviewing.

Key Technologies: C/ C++, Open CV , C# 7, ASP.net MVC 5, ASP .net Web Api, Ajax, Git, SVN, SQL Server, JQUERY, HTML, CSS, Web API, DB2 AS/400, ASP.net Web Forms, Windows form, Entity framework 6, .net framewok 4.7, ADO.net, Bootstrap 4, Angular 6

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Senior Designer and Developer	January 2011 – December 2017
Samim Rayaneh Co. (samimgroup.com)	

SAMIM Research and Development Company has been working on high tech products in the intelligence transport systems(ITS), smart camera, live broadcasting and advanced video areas, image and signal processing, interactive Internet/Intranet TV systems (IPTV/OTT) since 2000. The main project in our team (ITS) was designing an Embedded Smart Camera which is used in Intelligent Transportation Systems (ITS). Our released product has passed tests from Iranian legal/governmental organizations and currently is under execution 24/7 in the field.

- Design and Developing License Plate Recognition (LPR) and Speedometer System.
- Using image-processing and machine learning techniques to identify vehicles
- Identify vehicles by their license plates
- Estimate velocities of vehicles in highways.
- Grab frames, detect candidate plates in a frames, segment characters of a plate and finally Recognize characters and plate numbers.
- The elements which we used in this project are
    - An embedded smart camera
    - Infra-red illuminators
    - Customized Linux operating system
    - Real time LPR software
    - Web-application program as an interface of our embedded camera.
    - A server side Web application that connects to all our cameras network.
    - Database to record/fetch data.

I have been involved in all sections, especially in customizing Linux OS and developing driver for our camera and developing our real time LPR software (mainly developed in C++ using OpenCV library).

Key Technologies: C, C++, Open CV, C#, Linux Shell Script, VHDL, Buildroot, ASP.net, Git, SVN, SQL Server, PHP, Ajax, HTML, CSS, Gstreamer, ffmpeg, Windows form, Entity framework, .net framework

Application Developer & RA	October 2014 – December 2016
Research center of AmirKabir University (aut.ac.ir)	

AUT was the first established technical university in Iran in 1928, and is referred to as the "Mother of Engineering Universities". Acceptance to the university is competitive and entrance to undergraduate and graduate programs requires scoring among the top 1% of students in the Nationwide University Entrance Exams.

- Design and Developing Software which estimate angular velocity of one plane based on grabbed images of that plane in different position.

Key Technologies: C, C++, Open CV, C#, MATLAB, Linux Sell Script

Tutor	September 2010 – August 2014
University of Science and Culture (www.usc.ac.ir)	

The Iran University of Science and Culture is a research institution and university of engineering, science and art, offering both undergraduate and postgraduate studies.

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- Tutoring Artificial Intelligence and Image Processing for bachelor students.
- Establishing the "Image Processing Lab" of university

Key Technologies: MATLAB, OpenCV, C#, Weka

Software Engineer & ASP.Net Programmer	January 2008- July 2010
Chista Software Group (chista.org)	

Chista Software Group is a fast growing company working with industries in implementing different software.

- Design and Implementation of a prototype and RFP for Building Industry Information Center.

Key Technologies: C#, SharePoint 2010, SQL Server, ASP.net, HTML, CSS, Rational Rose, Visio, SQL Server

ACADEMIC EXPERIENCE

2017 - 2019	**Research Assistant at CVLab, Amirkabir University** *Research on Multi Camera Multi Target Tracking.* Under Supervision of Prof. R. Safabakhsh
2017 - 2019	**Senior Teaching Asistant at Amirkabir University, Tehran** *Neural Network Course* Prof. R. Safabakhsh
Spring 2011	**Supervisor of Image Processing Lab, University of Science and Culture** *Research on content-based image retrieval*
2008-2010	**Research Assistant at Pattern Recognition & Image Processing Lab, Amirkabir University** *Research on Image Segmentation Using Evolutionary Computation.* Under Supervision of Prof. M. Rahmati
2007-2008	**Research Assistant at Ad-hoc and Wireless Networks Lab, Amirkabir University** *Research on Coverage in Wireless Sensor Networks.* Under Supervision of Prof. M. Dehghan Resulted in a Conference Paper in WinSYS'08
2006-2007	**Research Assistant at Amirkabir University** *B.S. Thesis on Episodic Associative Memory.* Under Supervision of Mr. S. M. Hosseininejad
2006-2005	**Research Assistant at Software System R&D Lab, Amirkabir University** *Development of Evaluation Process Management System based on Common Criteria (CC) Global Standard.* Under Supervision of Prof. M. Razzazi The project was ordered and sponsored by Iran Telecommunication Research Center

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NOTABLE ACADEMIC PROJECTS

Fall 2009	Design, Implementation and analyze a method for numerical constant optimization in genetic programming, Evolutionary Computation Course, Amirkabir Univ. of Tech.
Fall 2009	Implementation and analyze Text Independent Speaker Recognition system using graph matching, Digital Speech Processing Course, Amirkabir Univ. of Tech.
Fall 2004	Design and Implementation of Database for Pishrah Company using MySQL, Database Design Course, Amirkabir Univ. of Tech.
Spring 2004	Design and Implementation of an information retrieval system, Information Retrieval Course, Amirkabir Univ. of Tech.
Spring 2003	Design and Implementation of a Multiplayer Game (Age of Empires Prototype) using C++ and Socket Programming, Advanced Programming Course, Amirkabir Univ. of Tech.

PUBLICATIONS

2017	"An Efficient Evolutionary Based Method for Image Segmentation.", **R. Aslanzadeh**, K. Qazanfari, and M. Rahmati, arXiv:1709.04393, 2017.
2008	"Dykco, Dynamic k-Coverage in Wireless Sensor Networks.", A. Yahyavi, L. Roostapour, **R. Aslanzadeh**, N. Yazdani, In Proceedings of 2008 IEEE 3 International Conference on Systems, Man, and Cybernetics,Suntec, Singapore,2008, p2804-2809.
2008	"Intrusion k-coverage in wireless sensor Networks.", A. Yahyavi, L. Roostapour, **R. Aslanzadeh**, M. Dehghan, N. Yazdani, In Proceedings of WinSYS2008 International Conference on Wireless Information Networks and Systems, Porto, Portugal, 2008, p41-46.

EDUCATION & TRAINING

2019-	**Laurentian University, Sudbury, ON, Canada** M.Sc. in Computational Science
2007-2010	**AmirKabir University of Technology, Tehran, Iran** M.Sc. in Artificial Intelligence Thesis: "A New Efficient Image Segmentation based on Evolutionary Computation"
2003-2007	**AmirKabir University of Technology, Tehran, Iran** M.Sc. in Computer Software Engineering Thesis: "Episodic Associative Memory Model with Neighborhood Effect and its Usage for Classifications"