Curriculum Vitae



Emad Mirsadeghi, BSc, MSc Date of Birth: 04.09.1985 Email: <u>emad.mirsadeghi@ut.ac.ir</u> Cell: +989122421815 Home Tel: +982433561298 Work Tel:+982433152262

Room No.262, Institute for Advanced Studies in Basic Sciences, Proff. Sobouti Blv, Zanjan, Iran

Profile

Emad is Product and Project Manager, a Business Developer, a Visionary, a Strategist, and data science researcher with the experience in the following areas: Artificial Intelligence (AI), Machine Learning (ML), Natural Language Processing (NLP), Autonomous Driving (AD), Operational Research (OR), Optimization, and Meta-heuristic algorithms. He has an entrepreneurial spirit and he is fond of startups. His passion is to create a path between data-science and business. He seeks solutions for the industrial problems via datascience. He has Product and Project Management (a merged role) experience with Consumer Insights Group (CIG) which is a Canadian data-science based startup.

Moreover, he has experience with developing motion planning of autonomous vehicles in simulated environments. He has developed a simulation environment using MATLAB and proposed a new motion planning algorithm for autonomous vehicles during a joint research with Dr.Ghariblu which resulted in submission of a paper to an IEEE journal. Ha has also published paper in a Spring Journal in meta-heuristics algorithms area.

EDUCATION & SPECIALIZED TRAINING

MASTER OF APPLIED SCIENCE in MECHANICAL ENGINEERING/MANUFATURING

Tehran University, Tehran, Iran, 2011

Thesis: Optimization of vehicle movements in a production plant using hybrid evolutionary algorithms Supervised by Dr.Masoud Shariatpanahi (<u>mshariatp@ut.ac.ir</u>, +98-9122185521)

BACHELOR OF APPLIED SCIENCE in MECHANICAL ENGINEERING/MANUFATURING

Shahid Rajaei University, Tehran, Iran, 2008

Thesis: Quality control of industrial parts using machine vision

Associate Diploma in MACHINE TOOLS

Zanjan University, Zanjan, Iran, 2006

EDUCATIONAL HONORS

- Ranked 8th in " Iran's national integrated Master of Science Entrance Exam in Mechanical Engineering " in 2009 (the number of participants of Mechanical Engineering were 16000)- 8th Mechanical Engineering overall and 3rd in Manufacturing
- Ranked 14th in "Iran's national integrated Bachelor's Entrance Exam in Mechanical Engineering " in 2009 (the number of participants of mechanical engineering were 10000)

RESEARCH BACKGROUND & INTEREST

Applications of Artificial Intelligence including:

Machine Learning:

- Supervised, unsupervised, and reinforcement learning
- Artificial Neural Networks
- Learning Expert Systems/Classifier Systems (LCS, ZCS, XCS)
- Reinforcement learning including Q-learning and rule based learning systems
- Building Predictive Models for Engineering Problems using experimental data by data-mining techniques
- Association rules
- Forecasting time-series

> Operational Research and Optimization Based Problems:

- Single and multi-objective optimization
- Meta-heuristic Algorithms (Genetic Algorithm, Artificial Bee Colony, Simulated Annealing, Particle Swarm Optimization, Ant Colony optimization)
- Optimal Control
- Dynamic Programming
- Decision Making under uncertainty
- Stochastic Programming and Robust Optimization
- Unconstrained & Constrained optimization
- Scheduling Problems (Job-shop Scheduling, Crane Scheduling, Knapsack/Rucksack Problem and similar problems)
- Manufacturing Processes and Methods Optimization
- Vehicle Routing Problem (VRP) and its variants (such as capacitated, with time-windows, stochastic and dynamic), Travelers Salesman Problem (TSP), Facility Location Problem (FLP), Internet Shopping Optimization Problem (ISOP)

Experts Systems & Applications

Statistical concepts

Autonomous driving including:

- Motion planning
- Simulation of autonomous vehicle behavior using MATLAB
- Natural Language processing (NLP):
 - General concepts
 - Opinion mining
 - Aspect-based sentiment analysis
 - Language models
 - NLTK
 - Gensim
 - Spacy

PUBLICATIONS

 Emad Mirsadeghi, Salman Khodaeifar, "Hybridizing Particle Swarm Optimization with Simulated Annealing and Differential Evolution", Submitted to "Cluster Computing" Journal in Springer (*Published*) <u>https://link.springer.com/article/10.1007/s10586-020-03179-y</u>

	2.	Mirsadeghi, E, Shariatpanahi, M, "Hybridizing Artificial Bee Colony With Simulated Annealing", Hybrid Information Technology, Volume 5, No 4, October 2012. (Published) <u>http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.248.8305</u>
	3.	Emad Mirsadeghi, Hashem Ghariblu, "Comfort-Oriented Lane Changing of an Autonomous Vehicle in The Long Term Driving", Submitted to " IEEE Transactions on Vehicular Technology " Journal (<i>Under Review</i>)
	4.	Conference Shahin malekirad,Emad Mirsadehi,"Designing the Magnetic Gear for optimal power transmission", National conference on Engineering Knowledge and Technology, march 2017, Tehran, Iran.
		PATENT
		Magnetic Gear: Registered in Iranian Patent Administration 2007
		RESEARCH EXPERIENCE
	>	Opinion mining and aspect based sentiment analysis of customer reviews, 2020
	2	Construction project cost estimation using Artificial Neural networks 2019
	>	Prediction of breast cancer by radiology parameters via Artificial Neural networks, 2019
	۶	Developing an autonomous driving simulation environment by Matlab, March 2019 to May 2019
	۶	Adaptive trajectory planning of autonomous vehicles in long term freeway driving, Zanjan University, since January 2019
		to May 2019 Hybridizing "Particle swarm ontimization" "Differential evolution" and "Simulated annealing" ontimization algorithms –
		institute for advanced studies in basic sciences, since July 2018 to March 2019
	≻	Prediction of Heart disease considering blood test results by Artificial Neural networks, 2018
	۶	Prediction of Wine quality (based on customer voting) considering different combinations of materials inside by Artificial
	~	Neural networks, 2016 Urbridings "Artificial Des Colony" with "Simpleted Argeoline" entirization Algorithm - University of Tehron 2012
	-	under supervision of DR. Masoud Shariatpanahi
	۶	Optimal Planning of vehicle robots' Movements in a Production Plant Using Hybrid Evolutionary Algorithms – University
		of Tehran, 2011, under supervision of Dr. Masoud Shariatpanahi
	≻	Modifying & Improving Complex Optimization Algorithm – University of Tehran, under supervision of DR. Masoud Shariatpanahi 2010
	\triangleright	Modifying & Improving XCS Classifier System – University of Tehran, under supervision of DR. Masoud Shariatpanahi,
		May 2010 to September 2010
	۶	Applying Image Processing Techniques to Check The Dimensions of round parts – University of Shahid Rajaei, under
		TEACHING EXPERIENCE
		Machine Design Since Fall 2017 Algadir Colledge, Zanjan, Iran
		Metrology Since Fall 2017 Algadir Colledge Zanjan, Iran
		 Engineering Statics Spring 2008, Sanjesh-danesh Educational Institute, Zanjan, Iran
		Strength of Materials Spring 2008, Sanjesh-danesh Educational Institute, Zanjan, Iran
		English 2008 – 2009, Apadana Educational Institute, Zanjan, Iran
		WORK EXPERIENCE
		 Product manager, Consumer Insignts Group, victoria, Brush Columbia, Canada, Since April 2020 Computer Science Specialist Institute for Advanced Studies in Basic Sciences (IASBS) since 2017
		 Technical Expert, Acidzasan sulfuric acid production plant Ltd, Zanjan, Iran 2014 - 2016
		SOFTWARE SKILLS
Operating Systems: Linux & Windows, MATLAB (General Toolbox, Predictive maintenance toolbox, Automated driving system		
toolb	ox, C	ptimization toolbox, Neural Networks toolbox, Image processing toolbox), Microsoft Office (Word, Excel, PowerPoint,
COMPLITER PROGRAMMING SKILLS		
MAT	TLAI	B (Level: Excellent), C ++ (Level: Good), Python (Level: Good), Web Programming (PHP, HTML, CSS, JAVASCRIPT,
JQUI	ERY)	(Level: Excellent)
		LANGUAGE
Persi	ian: i T	First Language
Engli	ish:	IELTS 6.5 (Speaking: 7, Reading: 6.5, Listening: 6, Writing: 6)
8_		INTERESTS
	۶	Algorithms, Artificial Intelligence, Data science, Programming
	>	Data-driven market studies, New Product Development (Specially data-driven approach), Startups, Disruptive innovations
	~	Consulting startups which are based on Al
KEFERENCES No. 100 Note: State of the second seco		
ŕ	Ade Tel	Iress: Room 415, Mathematics department, Institute for advanced studies in basic sciences, Dr. Sobouti Blv, Zanjan, Iran, : (+98)243315 5087, Cell: (+98)9124963479, Email: <u>s.khodayifar@iasbs.ac.ir</u>
> :	Dr. I Addı	Hashem Ghariblu , Associate Professor, University of Zanjan ress: Mechanical Engineering Department, Engineering Faculty, University of Zanian, 5th kilometer of Tabriz-Zanian old
	Road	s, Zanjan, Iran, Tell: (+98)24 3305 2503, Cell: (+98)9123417200, Email: ghariblu@znu.ac.ir
	n -	
>	Dr. N Ada	Aasoud Shariat Panahi, Associate Professor, University Of Tehran
	Tel:	(+98)2161114052, Cell: (+98)9122185521, Email: mshariatp@ut.ac.ir