

Curriculum Vitae

Hamed Zamanian

Department of Biomedical Engineering and
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Beheshti University of Medical Sciences,
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Education

Sep 2018-
Present

Doctor of Philosophy (Ph.D)

Biomedical Engineering, Bioelectric

Shahid Beheshti university of medical sciences, Tehran, Iran

GPA: 18.27/20

Thesis:

“Diagnosis the severity of Non-alcoholic fatty liver disease by deep learning methods based on ultrasound images and clinical information”

Supervisors: Dr. Ahmad Shalhaf, Prof. Mohammadreza Zali, Dr. Behzad Hatami

Sep 2007-
Sep 2010

Master of Applied Science (M.Sc.)

Electrical Engineering, Control

K.N. Toosi university of technology, Tehran, Iran

GPA: 3.27/4

Thesis:

“Design and implementation of electrical system to control the vertical position of plasma in Damavand Tokamak”

Supervisors: Dr. Alireza Fatehi, Dr. Amir Mousavie-nia

Sep 2002-
Jan 2007

Bachelor of Science (B.Sc.)

Electrical Engineering, Electronics

Chamran university, Ahvaz, Iran

GPA: 3.006/4

Thesis:

“Design, implementation and analysis the system of Plasma Enhanced Chemical Vapor Deposition System (PECVD) in two modes: DC & RF”

Supervisors: Dr. Abdol-nabie Kavsarian, Dr. Navid Alaei Shahani

Sep 1997-
Sep 2002

High School Diploma in Mathematics and Physics

Seyyed-o-Shohada High School, Nahavand, Hamadan, Iran

GPA:18.89/20

Research Experience

Jan 2019-
Present

Member of research groups in following Projects:

- Non-alcoholic fatty liver degree classification from ultrasound images and blood tests using deep learning methods (2021)
- Using artificial intelligence algorithms to diagnose NASH disease using clinical information (2023)
- Using machine learning algorithms to diagnose the severity of advanced non-alcoholic fatty liver disease using ultrasound images and clinical information
- Diagnosis of the disease of COVID-19 and its classification using CT images of the lung by radiomics method (2020)
- Automatic detection of the severity of covid 19 from chest CT scan images using deep learning methods (2020)
- Implementing Explainable AI on evaluating the high-risk parameters of NAFLD, based on clinical information and ultrasound Images (2024)
- Design a semi-supervised learning model to increase the number of labeled data of non-alcoholic fatty liver disease (NAFLD), in a combination of clinical information and ultrasound images (2024)

Jan 2013-
2018

- Study on methods of “diagnosing the stage of severity of COVID-19 based on machine learning algorithms and morphological features”, Shahid Beheshti University of Medical sciences, Tehran, Iran (2019)
- Study on “different approaches for classifying the severity of Non-alcoholic fatty liver disease (NAFLD) and Non-alcoholic fatty liver steatohepatitis (NASH) based on Deep learning algorithms”, Shahid Beheshti University of Medical sciences, Tehran, Iran (2017)
- Design and implementation of Supervisory Control System for offroad cars by Qt on Raspberry Pie Micro-computers, Center of Research and Technology, KN Toosi University of Technology, Tehran, Iran (2016-2017)
- Study on developing a hybrid control system for mesh-free model of plasma current based on operating conditions, Center of Research and Technology & Advanced Process Automation and Control (APAC) group, KN Toosi University of Technology, Tehran, Iran (2015-2017)
- Study on different gap metric approach and implementation of fractional order systems, Advanced Process Automation and Control (APAC) group, KN Toosi University of Technology, Tehran, Iran (2014-2015)
- Study on identification of fractional order model for Damavand Tokamak, Advanced Process Automation and Control (APAC) group, KN Toosi University of Technology, Tehran, Iran (2014-2015)
- Study on Experimental Physics and Industrial Control System (EPICS) and its applications, Advanced Process Automation and Control (APAC) group, KN Toosi University of Technology, Tehran, Iran (2014-2016)
- Study on design and implementation of a fault diagnostic system, Center of Research and Technology, KN Toosi University of Technology, Tehran, Iran (2016)

- Power supply systems
- Data Acquisition Systems
- Real time monitoring System
- Presentation on “Estimating TMR Reliability on FPGAs Using Markov Models”, Course project (Real-time systems), Shahid Beheshti University, Tehran, Iran (2013)
- Presentation on “Robust Control of a Hard Disk Drive; H2/H ∞ , μ Controller, ...”, Course project (Robust Control systems), Shahid Beheshti University, Tehran, Iran (2013)

Sep 2007-
Jan 2013

- Study on Designing and implementation of AC/DC and DC/AC Converters, Advanced Process Automation and Control (APAC) group, KN Toosi University of Technology, Tehran, Iran (2008-2010)
- Study on Designing and implementation of MIMO controller systems by FPGA, Advanced Process Automation and Control (APAC) group, KN Toosi University of Technology, Tehran, Iran (2010-2013)
- Design an FPGA Evaluation board with all possible I/O ports (Spartan II), Iran Caspian Co., Tehran, Iran (2011) (group project)
- Course project on “A survey and approaches about Kalman filtering”, KN Toosi University of Technology, Tehran, Iran (2007)
- Course project on “Predictor Control; Smith Predictor- Implementation in Nonlinear Process”, KN Toosi University of Technology, Tehran, Iran (2007)
- Course project on “Feedback linearization in Discrete-time systems; Review and experimental test”, KN Toosi University of Technology, Tehran, Iran (2008)
- Seminar on “Design of nonlinear neural network controllers for systems with time-varying delay”, KN Toosi University of Technology, Tehran, Iran (2008)

Sep 2002-
Sep 2007

- Member of Research team of Electrical engineering Faculty, Engineering Department, Shahid Chamran University, Ahvaz, Iran (2002-2005)
- Design and simulation of MP3Player controller based on Verilog programming language by Xilinx, Course project (Advanced logical circuits), Shahid Chamran University, Ahvaz, Iran (2005)
- Member of Execution team of Robotic matches, Ahvaz, Iran (2004)
- Presenting some seminars in Shahid Chamran University in following Subjects:
 - The structure of USB Devices: A survey and Approaches
 - RFID: Theory and its Future
 - DDS Systems in digital fields: investigation of Batch ICs in this class

Work Experience

Sep 2017-
Dec 2018

- Member of research team on Granted project “Design and implementation of a Plasma torch system for industrial waste incinerator” (2018)
- Member of research team on Granted project “Design and Fabrication of a Cold Atmospheric Plasma Jet for Cancer Therapy (in-vivo and in-vitro)

phases)" (2017)

Jan 2012-
Sep 2016

- Member of Execution team on Granted project about "Design and implementation of a fault diagnostic system", Center of Research and Technology, KN Toosi University of Technology, Tehran, Iran (2016)
- Member of Execution team on Granted project about "Upgrading and developing the control room based on EPICS infrastructure system", Advanced Process Automation and Control (APAC) group, KN Toosi University of Technology, Tehran, Iran (2014-2016)
- Visiting lecturer for "Computer architecture" course, Bu Ali Sina University, Hamadan, Iran (2013)

Sep 2008-
Sep 2010

- Member of an execution team on Granted project about "Developing the control system by new actuators (IGBT type), their drivers and their controller manipulated by DSP in Damavand Tokamak", Advanced Process Automation and Control (APAC) group, KN Toosi University of Technology, Tehran, Iran (2009-2010) (Part-time)
- Member of an execution team on Granted project about "Designing a new digital control system in Pulsed power studied system", Advanced Process Automation and Control (APAC) group, KN Toosi University of Technology, Tehran, Iran (2009-2010) (Part-time)

Publications

Journals

1. H. Rasouli, A. Fatehi, **H. Zamanian**; "Design and implementation of fractional order pole placement controller to control the magnetic flux in Damavand Tokamak"; Review of Scientific Instruments; Mar 2015
2. **H. Zamanian**, A. Koohi; "Implementation of a new iterative learning control algorithm on real data"; Review of Scientific Instruments; Feb 2016
3. H. Rasouli, **H. Zamanian**, M. Gheidi, M. Kheiri-fard, A. Koohi; "Design and implementation of new control room system in Damavand tokamak"; Journal of Instrumentation (JINST), July 2017
4. Mehrpouyan M, **Zamanian H**, Mehri-Kakavand G, Pursamimi M, Shalbfaf A, Ghorbani M, Abbaskhani Davanloo A. "Detection of stage of lung changes in COVID-19 disease based on CT images: a radiomics approach". Physical and Engineering Sciences in Medicine. 2022 Jul 7:1-9.
5. **Zamanian H**, Shalbfaf A. "Automatic Recognition of Non-alcoholic Fatty Liver by using Transfer Deep Learning Networks from Ultrasound Images". GOVARESH. 2020 Oct 11;25(3):188-97.
6. **Zamanian H**, Mostaar A, Azadeh P, Ahmadi M. "Implementation of Combinational Deep Learning Algorithm for Non-alcoholic Fatty Liver Classification in Ultrasound Images". Journal of Biomedical Physics & Engineering. 2021 Feb;11(1):73
7. **Zamanian H**, Shalbfaf A. Grading the Dominant Pathological Indices in Liver

- Diseases from Pathological Images Using Radiomics Methods. *Frontiers in Biomedical Technologies*. 2023 May 7.
8. **Zamanian H**, Shalhaf A. Estimation of non-alcoholic steatohepatitis (NASH) disease using clinical information based on the optimal combination of intelligent algorithms for feature selection and classification. *Computer Methods in Biomechanics and Biomedical Engineering*. 2023 May 23:1-6.
 9. **Zamanian H**, Shalhaf A. Grading of steatosis, fibrosis, lobular inflammation, and ballooning from liver pathology images using pre-trained convolutional neural networks. *International Journal of Imaging Systems and Technology*. 2023 Nov;33(6):2178-93.
 10. **Zamanian H**, Shalhaf A, Zali MR, Khalaj AR, Dehghan P, Tabesh M, Hatami B, Alizadehsani R, Tan RS, Acharya UR. Application of Artificial Intelligence Techniques for Non-Alcoholic Fatty Liver Disease Diagnosis: A Systematic Review (2005-2023). *Computer Methods and Programs in Biomedicine*. 2023 Nov 22:107932.
 11. Naderi Yaghouti, A.R., **Zamanian, H.**, Shalhaf, A. Machine learning approaches for early detection of non-alcoholic steatohepatitis based on clinical and blood parameters. *Sci Rep* 14, 2442 (2024). <https://doi.org/10.1038/s41598-024-51741-0>
 12. **Zamanian H**, Shalhaf A. Diagnosing the severity of non-alcoholic fatty liver disease based on explainable artificial intelligence. *Tehran University of Medical Sciences Journal*. 2025 Jan 10;82(10):766-74.
 13. **Zamanian, H.**, Shalhaf, A., Parvizi, M., Alizadehsani, R., Tan, R.S. and Acharya, U.R., 2025. Automated Detection of Non-Alcoholic Fatty Liver Disease Using Histopathological Images: A Systematic Review. *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, 15(3), p.e70044.

Books

1. "SPICE for Power Electronics and Electric Power; a comprehensive reference for students", Zamanian H., **Zamanian H.**, Darestani Farahani N., Asadzadeh Publication Co.; Nov 2019.
2. "Plasma and Plasma Medicine: an approach in principles of plasma and its applications in medical fields", **Zamanian H.**, Asadzadeh Publication Co.; Jan2025

Courses

Ph.D. Degree	<p>Relevant Courses:</p> <ul style="list-style-type: none"> • Modelling of biomedical dynamic systems • Bioinstrumentation • Optics and applications • Advanced image processing • Pattern recognition
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M.Sc. Degree	<p>Relevant Courses:</p> <ul style="list-style-type: none"> • Robust Control system • Hybrid system • Reliability analysis • Advanced Process control2 • Modern Control • Advanced Process Control1 • Optimal Control • Digital Control • Advanced Engineering Mathematics • System Identification • Nonlinear Control <p>Audited: Real time systems, Control of Robust systems, Hybrid systems, Model Predictive Control (MPC), NMPC, Multivariable Control, Iterative Learning Control (ILC), System Identification, Neural Network</p>
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B.Sc. Degree	<p>Relevant Courses:</p> <ul style="list-style-type: none"> • Electronic I, II, III • Communication I • Microprocessors • Computer Architecture • Electrical Circuits I, II • Industrial Electronics • Machines Theory I&II • Linear Control <p>Audited: Electrical Circuit Design, Semiconductor Materials, Advanced Logical Circuits</p>
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Skills

Computer Skills:	Linux	LabVIEW	Mathematica
	MATLAB & Simulink	ORCAD	M.S. Office
	Python	Altium Designer	
	Qt	(Protel)	
	C/C++		

Test Scores

Toefl (iBT) (2016)	Listening	Structure / Speaking	Reading	Writing
	23	23	25	28

GRE (2012)	Verbal	Quantitative	Analytical	Writing
	144	162	-	2.5

Research Interests

Machine learning, Computer vision, image processing, Data processing, wearable robots, bioinformatics

Referees

1.	Dr. Ahmad Shalbaf ; Associate Professor Faculty of biomedical engineering and biomedical physics, School of medicine, Shahid Beheshti University of Medical sciences, Tehran, Iran	shalbaf@sbmu.ac.ir
2.	Dr. MohammadReza Zali , Professor Gastroenterology and Liver Diseases Research Center, Research Institute for Gastroenterology and Liver Diseases, Shahid Beheshti University of Medical Sciences, Tehran, Iran	nzaali@yahoo.com
3.	Dr. Mohammadreza Deevband ; Professor Faculty of biomedical engineering and biomedical physics, School of medicine, Shahid Beheshti University of Medical sciences, Tehran, Iran	mdeevband@sbmu.ac.ir
4.	Dr. Ahmad Mostaar ; Professor Faculty of biomedical engineering and biomedical physics, School of medicine, Shahid Beheshti University of Medical sciences, Tehran, Iran	mostaar@sbmu.ac.ir
5.	Dr. Ali Esteki ; Professor Faculty of biomedical engineering and biomedical physics, School of medicine, Shahid Beheshti University of Medical sciences, Tehran, Iran	aesteki@sbmu.ac.ir
6.	Dr. Alireza Fatehi ; Associate Professor Faculty of Electrical Engineering and Computer Science, K.N. Toosi University of Technology, Tehran, Iran	fatehi@kntu.ac.ir
7.	Dr. Mahdi Aliyari Shourehdeli ; Associate Professor Faculty of Electrical Engineering and Computer Science, K.N. Toosi University of Technology, Tehran, Iran	m_aliyari@eetd.kntu.ac.ir