

# Nasser Aghazadeh

Professor in Applied Mathematics





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-  ResearcherID: Q-6551-2019
-  Scopus Author ID: 8937839000
-  orcid.org/0000-0003-2705-8942
-  Google Scholar

## Current Research Interests

My research focuses on the following topics:

- Wavelet analysis and its applications
- Numerical solution of differential equations
- Fractional differential equations
- Mathematical image processing, in particular, image segmentation, edge detection, image restoration, medical image processing

## Education

July 31, 2007 **Doctor of Philosophy (PhD): Applied Mathematics, Iran University of Science and Technology, Tehran, Iran**

**Dissertation:** (in Persian) Numerical Solution of Integral Equations of the First and Second Kind by Using Wavelets

**Supervisor:** Prof. Dr. K. Maleknejad

**GPA:** 19/20

Nov 29, 2000 **Master of Science (MSc): Applied Mathematics, Iran University of Science and Technology, Tehran, Iran**

**Thesis:** (in Persian) Modified Taylor Series Expansion Method for a Class of Second Kind Integral Equations

**Supervisor:** Prof. Dr. K. Maleknejad

**GPA:** 17/20

Sep 13, 1998 **Bachelor of Science (BSc): Applied Mathematics**, *University of Tabriz, Tabriz, Iran*  
GPA: 16.31/20

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## Publications

- Journals
- **Constructing Multiwavelet-Based Shearlets and Using them for Automatic Segmentation of Noisy Brain Images Affected by Covid-19**,  
Authors: Nasser Aghazadeh, Paria Moradi, Parisa Noras,  
Will be Published in: *Journal of Medical Signals & Sensors*
  - **On time fractional modified Camassa-Holm and Degasperis-Procesi equations by using the Haar wavelet iteration method**,  
Authors: N. Aghazadeh, Ghader Ahmadnezhad, Shahram Rezapour,  
Will be Published in: *Iranian Journal of Mathematical Sciences and Informatics*
  - **An Automatic MRI Brain Image Segmentation Technique Using Edge-Region Based Level Set**,  
Authors: Nasser Aghazadeh, Paria Moradi, Giovanna Castellano, Parisa Noras,  
Published: 27 Nov 2022 in *The Journal of Supercomputing*,  
<https://doi.org/10.1007/s11227-022-04948-9>
  - **Chebyshev-Quasilinearization Method for Solving Singular Nonlinear Fractional Lane-Emden Equations**,  
Authors: Amir Mohammadi, Ghader Ahmadnezhad, Nasser Aghazadeh,  
Published: September 19, 2022 in *Communications in Mathematics* 30(1) (2022) 201-228,  
<https://doi.org/10.46298/cm.9895>
  - **Taylor Wavelets Collocation Technique for Treatment Fractional Nonlinear Singular PDEs**,  
Authors: Nasser Aghazadeh, Amir Mohammadi, Gamze Tanoglu,  
Published: 12 July 2022, in *Mathematical Sciences*,  
<https://doi.org/10.1007/s40096-022-00483-z>
  - **Existence of Solution of Functional Integral Equations by Measure of Non-compactness and Sinc Interpolation to Find Solution**,  
Authors: Mohsen Rabbani, Reza Arab, Bipan Hazarika and Nasser Aghazadeh,  
Published: Feb 1, 2022, in *Fixed Point Theory* 23(1) (2022) 331-350.,  
<https://doi.org/10.24193/fpt-ro.2022.1.21>

- **Solving partial fractional differential equations by using the Laguerre wavelet-Adomian method,**  
 Authors: Nasser Aghazadeh, Amir Mohammadi, Ghader Ahmadnezhad, Shahram Rezapour,  
 Published: 01 May 2021 in *Advances in Difference Equations* 2021 2021:231.,  
<https://doi.org/10.1186/S13662-021-03388-8>
  
- **A Three-Stage Shearlet-based algorithm for vessel segmentation in medical imaging,**  
 Authors: Mirzafam, Mahdi; Aghazadeh, Nasser,  
 Published: 6 Oct 2020, in *Pattern Analysis and Applications* 24 (2021) 591-610.,  
<https://doi.org/10.1007/S10044-020-00915-3>
  
- **Wavelet-Picard iterative method for solving singular fractional nonlinear partial differential equations with initial and boundary conditions,**  
 Authors: Amir Mohammadi, Nasser Aghazadeh, Shahram Rezapour,  
 Published: Nov 2020 in *Computational Methods for Differential Equations* 8(4) (2020) 610-638,  
<https://doi.org/10.22034/cmde.2020.31627.1479>
  
- **Comparison of lumbar segmental stabilization and general exercises on clinical and radiologic criteria in grade-I spondylolisthesis patients: A double-blind randomized controlled trial,**  
 Authors: Mohammadimajd, Elaheh; Lotfinia, Iraj; Salahzadeh, Zahra; Aghazadeh, Nasser; et al,  
 Published: 28 April 2020 in *Physiotherapy Research International* 2020; e1843,  
<https://doi.org/10.1002/PRI.1843>
  
- **Haar wavelet iteration method for solving time fractional Fisher's equation,**  
 Authors: Ahmadnezhad, Ghader; Aghazadeh, Nasser; Rezapour, Shahram,  
 Published: 2020 in *Computational Methods for Differential Equations* 8(3) (2020) 505-522,  
<https://doi.org/10.22034/CMDE.2020.31527.1475>
  
- **Newfangled Procedures Using X-ray to Determine the Cobb Angle in Patients with Scoliosis: An Updated Systematic Review,**  
 Authors: Moftian, Nazila; Hachesu, Peyman Rezaei; Pourfeizi, Hojjat Hossein; Samad-Soltani, Taha; Aghazadeh, Nasser; et al,  
 Published: Nov 2019 in *Current Medical Imaging* 2019, 15(10) 922-932,  
<https://doi.org/10.2174/1573405614666180531073300>

- **Haar wavelet collocation method for solving singular and nonlinear fractional time-dependent Emden-Fowler equations with initial and boundary conditions,**  
 Authors: Mohammadi, Amir; Aghazadeh, Nasser; Rezapour, Shahram,  
 Published: 27 Aug 2019 in *Mathematical Sciences* 13(3) 255-265,  
<https://doi.org/10.1007/S40096-019-00295-8>
  
- **Joint Image Deconvolution and Separation Using Mixed Dictionaries,**  
 Authors: Siadat, Medya; Aghazadeh, Nasser; Akbarifard, Farideh; Brismar, Hjalmar; Öktem Ozan,  
 Published: 06 March 2019 in *IEEE Transactions on Image Processing* 28(8) (2019) 3936-3945,  
<https://doi.org/10.1109/TIP.2019.2903316>
  
- **Existence Results and Numerical Solutions for a Multi-term Fractional Integro-differential Equation,**  
 Authors: Aghazadeh, N.; Ravash, E.; Rezapour, Sh.,  
 Published: 2019 in *Kragujevac Journal of Mathematics* 43(3) (2019) 413-426
  
- **Reordering for improving global Arnoldi-Tikhonov method in image restoration problems,**  
 Authors: Siadat, Medya; Aghazadeh, Nasser; Öktem, Ozan,  
 Published: 10 October 2017 in *Signal, Image and Video Processing* (2018) 12(3) 497-504,  
<https://doi.org/10.1007/S11760-017-1185-5>
  
- **New denoising and edge detection scheme based on rationalized Haar functions (in Persian),**  
 Authors: Nasser Aghazadeh; Parisa Noras,  
 Published: 2018 in *Journal of Machine Vision and Image Processing* 5(1) (2018) 99-111,
  
- **Directional Schemes for Edge Detection Based on B-spline Wavelets,**  
 Authors: Noras, Parisa; Aghazadeh, Nasser,  
 Published: 19 January 2018 in *Circuits, Systems, and Signal Processing* (2018) 37(9) 3973-3994,  
<https://doi.org/10.1007/S00034-018-0753-4>
  
- **A new multiphase segmentation method using eigenvectors based on K real numbers,**  
 Authors: Ladan Sharafyan Cigaroudy; Nasser Aghazadeh,  
 Published: 09 July 2016 in *Circuits Systems and Signal Processing* 36(4) (2017) 1445-1454,  
<https://doi.org/10.1007/S00034-016-0359-7>

- **A multiphase segmentation method based on binary segmentation method for Gaussian noisy image,**  
 Authors: Ladan Sharafyan Cigaroudy; Nasser Aghazadeh,  
 Published: 28 November 2016 in *Signal Image and Video Processing* (2017) 11(5) 825-831,  
<https://doi.org/10.1007/S11760-016-1028-9>
  
- **Two-parameter generalized Hermitian and skew-Hermitian splitting iteration method,**  
 Authors: Nasser Aghazadeh; Davod Khojasteh Salkuyeh; M. Bastani,  
 Published: 12 Mar 2015 in *International Journal of Computer Mathematics* 93(7) (2016) 1119-1139,  
<https://doi.org/10.1080/00207160.2015.1019873>
  
- **A restoration-segmentation algorithm based on flexible Arnoldi-Tikhonov method and Curvelet denoising,**  
 Authors: Aghazadeh, Nasser; Akbarifard, Farideh; Cigaroudy, Ladan Sharafyan,  
 Published: 24 November 2015 in *Signal, Image and Video Processing* (2016) 10(5) 935-942,  
<https://doi.org/10.1007/S11760-015-0843-8>
  
- **Convergence of an Approach for Solving Fredholm Functional Integral Equations,**  
 Authors: Nasser Aghazadeh; Somayeh Fathi,  
 Published: 2016 in *Iranian Journal of Mathematical Sciences and Informatics* (2016) 11(1) 35-46,  
<https://doi.org/10.7508/IJMSI.2016.01.004>
  
- **Generalized Hermitian and skew-Hermitian splitting iterative method for image restoration,**  
 Authors: Nasser Aghazadeh; Mehdi Bastani; Davod Khojasteh Salkuyeh,  
 Published: 15 October 2015 in *Applied Mathematical Modelling* 39(20) (2015) 6126-6138,  
<https://doi.org/10.1016/J.APM.2015.01.042>
  
- **Edge Detection with Hessian Matrix Property Based on Wavelet Transform,**  
 Authors: Nasser Aghazadeh; Yaser Gholizade atani,  
 Published: 2015 in *Journal of Sciences, Islamic Republic of Iran* 26(2) 163-170 (2015)

- **Projection Methods for Solving Urysohn Integral Equations with Multi-wavelet Bases,**  
 Authors: Nasser Aghazadeh,  
 Published: 2015 in *Malaysian Journal of Mathematical Sciences* 9(1) 111-125 (2015)
  
- **Combining Compact Finite Difference Schemes with Filters for Image Restoration,**  
 Authors: Nasser Aghazadeh; Farideh Akbarifard,  
 Published: 15 February 2016 in *Computational Mathematics and Modeling* (2016) 27(2) 206-216,  
<https://doi.org/10.1007/s10598-016-9315-4>
  
- **The Legendre Wavelet Method for Solving Singular Integro-differential Equations,**  
 Authors: Nasser Aghazadeh, Yaser Gholizade atani, Parisa Noras,  
 Published: 2014 in *Computational Methods for Differential Equations* (2014) 2(2) 62-68.
  
- **Solving nonlinear two-dimensional Volterra integro-differential equations by block-pulse functions,**  
 Authors: Nasser Aghazadeh; Amir Ahmad Khajehnasiri,  
 Published: 2013 in *Mathematical Sciences*,  
<https://doi.org/10.1186/2251-7456-7-3>
  
- **Aitken extrapolation and epsilon algorithm for an accelerated solution of weakly singular nonlinear Volterra integral equations,**  
 Authors: H Mesgarani; Nasser Aghazadeh; P Parmour,  
 Published: 29 January 2010 in *Physica Scripta* 81(2) (2010) 025006 (7pp),  
<https://doi.org/10.1088/0031-8949/81/02/025006>
  
- **A wavelet Petrov-Galerkin method for solving integro-differential equations,**  
 Authors: K. Maleknejad; M. Rabbani; Nasser Aghazadeh; M. Karami,  
 Published: 23 Jul 2009 in *International Journal of Computer Mathematics* 86(9), 1572-1590, 2009,  
<https://doi.org/10.1080/00207160801923056>
  
- **Computational projection methods for solving Fredholm integral equation,**  
 Authors: M. Rabbani; K. Maleknejad; N. Aghazadeh; R. Mollapourasl,  
 Published: 1 Aug 2007 in *Applied Mathematics and Computation* 191(1) (2007), 140-143,  
<https://doi.org/10.1016/J.AMC.2007.02.071>

- **Numerical computational solution of the Volterra integral equations system of the second kind by using an expansion method,**  
 Authors: M. Rabbani; K. Maleknejad; Nasser Aghazadeh,  
 Published: 15 April 2007 in *Applied Mathematics and Computation* 187(2) (2007) 1143–1146,  
<https://doi.org/10.1016/J.AMC.2006.09.012>
  
- **Numerical solution of Fredholm integral equation of the first kind with collocation method and estimation of error bound,**  
 Authors: K. Maleknejad; N. Aghazadeh; R. Mollapourasl,  
 Published: 1 August 2006 in *Applied Mathematics and Computation* 179(1) (2006) 352–359,  
<https://doi.org/10.1016/J.AMC.2005.11.159>
  
- **Numerical solution of second kind Fredholm integral equations system by using a Taylor-series expansion method,**  
 Authors: Maleknejad, K; Aghazadeh, N; Rabbani, M,  
 Published: 15 April 2006 in *Applied Mathematics and Computation* 175(2) (2006) 1229–1234,  
<https://doi.org/10.1016/J.AMC.2005.08.039>
  
- **Numerical solution of Volterra integral equations of the second kind with convolution kernel by using Taylor-series expansion method,**  
 Authors: K. Maleknejad; Nasser Aghazadeh,  
 Published: 25 February 2005 in *Applied Mathematics and Computation* 161(3) (2005) 915–922,  
<https://doi.org/10.1016/J.AMC.2003.12.075>
  
- **Numerical solution of Hammerstein equations via an interpolation method,**  
 Authors: K. Maleknejad; M. Karami; Nasser Aghazadeh,  
 Published: 1 September 2005 in *Applied Mathematics and Computation* 168(1) (2005) 141–145,  
<https://doi.org/10.1016/J.AMC.2004.08.031>
  
- Other Refereed Papers ○ **Convergence of Wavelet Galerkin Method for Fredholm Integral Equation of the First Kind,**  
 Authors: K. Maleknejad and N. Aghazadeh,  
 Published: 2015 in *Acta Universitatis Apulensis* 41 (2015) 131-140,  
 DOI: 10.17114/j.aaa.2015.41.10
  
- **An Approach for Solving Functional Integral Equations,**  
 Authors: N. Aghazadeh and E. Ravash,  
 Published: 2012 in *Acta Universitatis Apulensis* 29 (2012) 347-352

- A Modified Homotopy Perturbation Method for Solving Linear and Nonlinear Integral Equations,  
Authors: N. Aghazadeh and S. Mohammadi,  
Published: 2012 in International Journal of Nonlinear Science 13(3) (2012) 308-316
- Semiorthogonal Quadratic B-Spline Wavelet Approximation for Integral Equations,  
Authors: M. Rabbani and N. Aghazadeh,  
Published: 2009 in Mathematical Sciences, 3(1), 99-110, 2009
- Solving Non-linear Fredholm Integro-differential Equations,  
Authors: N. Aghazadeh and H. Mesgarani,  
Published: 2009 in World Applied Sciences Journal 7 (Special Issue for Applied Math) (2009) 50-56
- Conference Papers ○ Authors: Ladan Sharafyan Cigaroudy; Nasser Aghazadeh, A Binary Segmentation Algorithm Based on Shearlet Transform and Eigenvectors, Published: 2015 in 2nd International Conference on Pattern Recognition and Image Analysis (IPRIA), DOI: 10.1109/PRIA.2015.7161618
- Authors: Nasser Aghazadeh, Solving Nonlinear Hammerstein Integral Equations by Using B-spline Scaling Functions, Published: 2009 in World Congress on Engineering 2009, VOLS I AND II
- Authors: Nasser Aghazadeh, Yaser Gholizade atani and Parisa Noras, An Edge Detection Scheme with Legendre Multiwavelets, Proceeding of the 46th Annual Iranian Mathematics Conference (AIMC46), 1322-1325, 25-28 August 2015, Yazd University, Yazd, Iran
- Authors: Ladan Sharafyan Cigaroudy and Nasser Aghazadeh, A binary-segmentation algorithm based on Shearlet transform and eigenvectors, The 2nd-conference on Pattern Recognition and Image Analysis (IPRIA2015), March 11-12, 2015, Guilan University, Rasht, Iran.
- Authors: Mehdi Bastani and Nasser Aghazadeh, On the generalized Hermitian and Skew-Hermitian Splitting Iterative Method for Image Restoration, Caucasian Mathematics Conference, CMC I, Tbilisi, Georgia, September 5 and 6, 2014.
- Authors: Yaser Gholizade atani and Nasser Aghazadeh, Edge Detection Based on Wavelet and Direction of Gradient, Caucasian Mathematics Conference, CMC I, Tbilisi, Georgia, September 5 and 6, 2014.



- Authors: Mehdi Bastani and Nasser Aghazadeh, GHSS iterative method for image restoration, Proceeding of the 43rdthe Workshop on Electrical and Computer Engineering Subfields, Istanbul, Turkey, August 2014, 190-193.
- Authors: Mehdi Bastani, Farideh Akbarifard and Nasser Aghazadeh, An application of a compact finite difference method in image denoising, Proceeding of the 43rdAnnual Iranian Mathematics Conference, University of Tabriz, Tabriz, Iran, 27-30 August 2012, 534-537.
- Authors: Nasser Aghazadeh and Amir Ahmad Khajehnasiri, Solving high-order nonlinear Volterra integro-differential equations by using block-pulse functions, Proceeding of the 43rdAnnual Iranian Mathematics Conference, University of Tabriz, Tabriz, Iran, 27-30 August 2012, 1284-1287.
- Authors: Nasser Aghazadeh and Medya Siadat, Galerkin Method for Solving Functional Integral Equations of Mixed Type, Proceeding of the 2ndInternational Conference on Mathematical Applications in Engineering (ICMAE2012) KL, Malaysia, 1-3 July, 2012, 342-345.
- Authors: Nasser Aghazadeh and Mehrdad Lakestani, Solving Nonlinear Fredholm-Hammerstein Integral Equations by Using Cardinal Legendre Functions, 4th Congress of the Turkic World Mathematical Society (TWMS) Baku, Azerbaijan, 1-3 July, 2011.
- Authors: Khosrow Maleknejad and Nasser Aghazadeh, Solving Hammerstein Integral Equations by Using B-Spline Scaling Functions, Proceedings of the World Congress on Engineering 2009 Vol I, WCE 2009, July 1-3, 2009, London, U.K.
- Authors: Nasser Aghazadeh, Using B-Spline Scaling Functions for Solving Integro-Differential Equations, 14thConference on Difference Equations and Applications (ICDEA2008), July 21-25, 2008, Istanbul, Turkey.
- Authors: Nasser Aghazadeh and Khosrow Maleknejad, Using Quadratic B-Spline Scaling Functions for Solving Integral Equations, International Conference, Dynamical Systems and Applications, July 1-6, 2007, Selcuk, Kusadasi, Izmir, Turkey.
- Authors: Nasser Aghazadeh and Khosrow Maleknejad, Treatment of the First Kind Integral Equation by Projection Method with Wavelet Basis, International Congress of Mathematicians, 22-30 August 2006, Madrid, Spain.

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## Teaching Experiences

My years of teaching and lecturing can be divided into two periods. The period before ASMU and the period at ASMU.

Since 2007, I have been teaching some courses for several years at ASMU. These are the courses I have been teaching during these years. Also, I added my “teacher qualification” results (ME) in those years compared to the university average (UNI) results. (According to the official documents from the university; the documents are in Persian and can be translated upon any request).

**ME:** my evaluation results according to the results extracted from the forms filled out by the students at my courses; scores are from 20.

**UNI:** the university average evaluation results according to the results extracted from the forms filled out by all students at the university; scores are from 20.

Fall 2022 **Visiting Professor**

Izmir Institute of Technology, Izmir, Turkey

Spring 2022 **ME: 18.32/20 – UNI: 18.83/20**

Math-16512414	English for Math Students	
Math-16512103	Basics of Numerical Analysis	
Math-19223108	Wavelet and its Applications	Graduate

Fall 2021 **ME: 19.43/20 – UNI: 18.73/20**

Math-19223107	Approximation Theory	Graduate
Math-19213102	Advanced Numerical Analysis	Graduate

Spring 2021 **ME: 19.74/20 – UNI: 18.62 /20**

Math-19424102	Numerical Linear Algebra	Graduate
Math-19223108	Wavelet and its Applications	Graduate

Fall 2020 **ME: 19.07/20 – UNI: 18.56/20**

Math-19424007	Spectral Methods	Graduate
Math-19223001	Advanced Numerical Analysis	Graduate
Math-16512406	Numerical Analysis	

Spring 2020 **ME: 18.73/20 – UNI: 18.04/20**

Math-16512415	Bachelor Project	
Math-19424102	Numerical Linear Algebra	Graduate
Math-19223108	Wavelet and its Applications	Graduate
Math-16512103	Basics of Numerical Analysis	

Fall 2019 **ME: 19.49/20 – UNI: 18.87 /20**

Math-19424007	Spectral Methods	Graduate
Math-19223107	Approximation Theory	Graduate
Math-19213102	Advanced Numerical Analysis	Graduate
Math-16512406	Numerical Analysis	

Spring 2019	<b>ME: 19.42/20 – UNI: 18.85/20</b>		
	Math-19424102	Numerical Linear Algebra	Graduate
	Math-19223108	Wavelet and its Applications	Graduate
	Math-16512103	Basics of Numerical Analysis	
	Math-16512415	Bachelor Project	
Fall 2018	<b>ME: 19.79/20 – UNI: 18.96/20</b>		
	Math-19424007	Spectral Methods	Graduate
	Math-19223107	Approximation Theory	Graduate
	Math-19223001	Advanced Numerical Analysis	Graduate
Spring 2018	<b>ME: 19.92/20 – UNI: 18.81/20</b>		
	Math-19014104	Operator Theory I	Graduate
	Math-19014537	Some Topics on Operator Theory	Graduate
	Math-19223108	Wavelet and its Applications	Graduate
Fall 2017	<b>Visiting Professor</b>		
	Technische Universität Berlin, Berlin, Germany		
Spring 2017	<b>Visiting Professor</b>		
	Technische Universität Berlin, Berlin, Germany		
Fall 2016	<b>ME: 20/20 – UNI: 18.81/20</b>		
	Math-19014015	Advanced Linear Algebra	Graduate
	Math-19014104	Operator Theory I	Graduate
Spring 2016	<b>ME: 18.20/20 – UNI: 18.86/20</b>		
	Math-19014104	Operator Theory I	Graduate
Fall 2015	<b>ME: 19.13/20 – UNI: 18.92/20</b>		
	Math-19014516	Partial Differential Equations	Graduate
	Math-19014524	Integral Equations	Graduate
Spring 2015	<b>ME: 19.82/20 – UNI: 18.96/20</b>		
	Math-19014106	Special Topics on Operator Theory	Graduate
	Math-19223206	Approximation Theory	Graduate
Fall 2014	<b>ME: 18.11/20 – UNI: 18.97/20</b>		
	Math-19014524	Integral Equations	Graduate
	Math-19113412	Advanced Numerical Analysis	Graduate
Spring 2014	<b>ME: 19.91/20 – UNI: 18.83/20</b>		
	Math-19014516	Partial Differential Equations	Graduate
	Math-19223206	Approximation Theory	Graduate

Fall 2013	<b>ME: 18.90/20 – UNI: 18.93/20</b>		
	Math-19014524	Integral Equations	Graduate
	Math-19223001	Advanced Numerical Analysis	Graduate
Spring 2013	<b>ME: 19.76/20 – UNI: 18.75/20</b>		
	Math-31328200	Bachelor Project	
	Math-19014516	Partial Differential Equations	Graduate
	Math-19223206	Approximation Theory	Graduate
Fall 2012	<b>ME: 19.75/20 – UNI: 18.74/20</b>		
	Math-31328200	Bachelor Project	
	Math-19213204	Numerical Solution of Integral Equations	Graduate
	Math-19014524	Integral Equations	Graduate
Spring 2012	<b>ME: 19.17/20 – UNI: 18.61/20</b>		
	Math-31328200	Bachelor Project	
	Math-19014516	Partial Differential Equations	Graduate
	Math-19223206	Approximation Theory	Graduate
Fall 2011	<b>ME: 18.42/20 – UNI: 18.4/20</b>		
	Math-31921711	Numerical Analysis I	
	Math-19213204	Numerical Solution of Integral Equations	Graduate
	Math-19014524	Integral Equations	Graduate
Spring 2011	<b>ME: 18.76/20 – UNI: 18.42/20</b>		
	Math-19213102	Advanced Numerical Analysis I	Graduate
	Math-31920510	Differential Equations	
	Math-31328200	Bachelor Project	
	IT-13812003	Differential Equations	
	Math-31920510	Differential Equations	
Fall 2010	<b>N/A</b>		
	Math-31328901	Mathematics Laboratory I	
	Math-31921711	Numerical Analysis I	
	Math-19213102	Advanced Numerical Analysis I	Graduate
	Math-31328200	Bachelor Project	
	Math-19213206	Approximation Theory	Graduate
Spring 2010	<b>N/A</b>		
	Math-31921711	Numerical Analysis I	
	Math-31328200	Bachelor Project	
	Math-19213203	Numerical Solution of ODEs	Graduate
	IT-13812001	Calculus I	
	Chem-33020101	Calculus I	
	Math-31921210	Basics of Computer and Programming	
	Math-19014524	Integral Equations	Graduate
	Math-31920510	Differential Equations	

Fall 2009	<b>N/A</b>		
	Math-31328901	Mathematics Laboratory I	
	Math-31224012	Numerical Analysis II (group A)	
	Math-31224012	Numerical Analysis II (group B)	
	Phys -32220050	Differential Equations	
	Chem-33020300	Differential Equations	
	Math-19223206	Approximation Theory	Graduate
Spring 2009	<b>N/A</b>		
	Math-31328901	Mathematics Laboratory I (group A)	
	Math-31328901	Mathematics Laboratory I (group B)	
	Math-31328901	Mathematics Laboratory I (group C)	
	Math-31921711	Numerical Analysis I	
	Math-19213204	Numerical Solution of Integral Equations	Graduate
	Math-19223206	Approximation Theory	Graduate
Fall 2008	<b>N/A</b>		
	Math-31328901	Mathematics Laboratory I (group A)	
	Math-31328901	Mathematics Laboratory I (group B)	
	Math-31921711	Numerical Analysis I	
	Math-19213102	Advanced Numerical Analysis	Graduate
	Math-19213204	Numerical Solution of Integral Equations	Graduate
	Civil -14522600	Numerical Computation	
Spring 2008	<b>N/A</b>		
	Math-31920510	Differential Equations (group A)	
	Math-31920510	Differential Equations (group B)	
	Math-31921210	Basics of Computer and Programming (group A)	
	Math-31921210	Basics of Computer and Programming (group B)	
	Math-31328901	Mathematics Laboratory I	
Fall 2007	<b>N/A</b>		
	Civil -14522600	Numerical Computation (group A)	
	Civil -14522600	Numerical Computation (group B)	
	Chem-33020300	Differential Equations	
	Mech-18822001	Calculus I	

From 2004 till 2007, exactly before securing a position at ASMU, I had been teaching at the following universities as a part-time lecturer:

2004-2005	<b>Part-time lecturer, Iran University of Science and Technology</b>	
	Numerical Computation	undergraduate
2005-2007	<b>Part-time lecturer, Shahid Rajaei University</b>	
	Numerical Computation	undergraduate
	Numerical Analysis	undergraduate
	Calculus I	undergraduate
	Mathematics Laboratory	undergraduate

2005-2007	<b>Part-time lecturer</b> , <i>Islamic Azad University, South Tehran Branch</i> Numerical Computation Calculus I Differential Equations	undergraduate undergraduate undergraduate
2004-2006	<b>Part-time lecturer</b> , <i>University of Applied Science and Technology, Tehran, Iran</i> Numerical Computation Calculus I Computer Laboratory Basics of Computer	undergraduate undergraduate undergraduate undergraduate
2008-2009	<b>Part-time lecturer</b> , <i>Payame Noor University, Tabriz, Iran</i> Advanced Numerical Analysis	graduate

## PhD Students Supervised

- Oct 13, 2020 **Mehdi Mirzafam**, *Segmentation of Magnetic Resonance Angiography Images for Extraction of Blood Vessels Based on Shearlets*  
Co-adviser: Professor M. Poureisa (Tabriz University of Medical Sciences, Tabriz, Iran)
- Sep 17, 2019 **Parisa Noras**, *Edge Detection of Medical Images Based on Shearlets*
- Sep 17, 2019 **Ghader Ahmadnezhad**, *Numerical solutions of fractional Camassa-Holm and Fisher equations by using wavelet*  
2nd-supervisor: Professor Shahram Rezapour
- Sep 17, 2019 **Amir Mohammadi**, *Numerical solution of some singular fractional partial differential equations by using wavelet*  
2nd-supervisor: Professor Shahram Rezapour
- June 19, 2018 **Elahe Ravash**, *Analysis and treatment of fractional differential and integro-differential equations with multiwavelets method*  
Co-adviser: Professor Shahram Rezapour
- Oct 4, 2017 **Medya Siadat**, *Applications of mixed representation systems in image separation*  
Co-adviser: Professor Ozan Öktem (KTH Royal Institute of Technology, SE-100 44, Stockholm, Sweden)
- Jan 24, 2017 **Yaser Gholizade atani**, *Edge detection using B-spline wavelets*
- July 5, 2016 **Ladan Sharafyan Cigaroudy**, *Image segmentation with some mathematical methods for extraction of target objects*

Sep 22, 2015 **Farideh Akbarifard**, *Application of some numerical methods in image restoration with different boundary conditions*

April 15, 2015 **Mehdi Bastani**, *Image restoration by solving linear system of equations based on HSS iterative method*

Co-adviser: Prof. D. Khojasteh Salkuyeh (University of Guilan, Rasht, Iran)

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## Current PhD Students

PhD candidate **Shirin Khezri**, *Segmentation of Medical Images Using a Fuzzy Clustering Method based on Weighting and Mean Membership Linking Using Wavelet-Contourlet Transform*

2nd-supervisor: Dr. Mehdi Hashemzadeh, Co-adviser: Dr. Parisa Noras, Dr. Amin Golzari

PhD candidate **Arezu Najafi Moghaddam**, *Medical image segmentation using a fuzzy clustering method based on feature weighting and cluster weighting using curvelet transformation*

2nd-supervisor: Dr. Mehdi Hashemzadeh, Co-adviser: Dr. Parisa Noras, Dr. Amin Golzari

PhD candidate **Leila Pourreza Babil**, *Accurate diagnosis of breast tissue masses in mammographic images using fuzzy logic in image quality enhancement, image segmentation and lesions border detection processes*

2nd-supervisor: Dr. Mehdi Hashemzadeh

PhD candidate **Roya Roshan**, *An image compression method based on combining of deep learning and classic methods*

2nd-supervisor: Dr. Nasser Farajzadeh, Co-adviser: Dr. Parisa Noras

PhD candidate **Ruhollah Moatemedi**, *Segmentation of Mammographic Images Using Fractional Hessian Matrix and Fractional Order Derivative Based Active Contour Model*

2nd-supervisor: Dr. Mehdi Hashemzadeh, Co-adviser: Dr. Parisa Noras

PhD candidate **Mandana Abbassi**, *Iris Detection Based on Contour Features Extraction by Bendlets*

Co-adviser: Dr. Parisa Noras

PhD candidate **Alireza Alizadediz**, *Solving some fuzzy equations using some numerical-analytical methods by using the generalized Hukuhara Derivative*

2nd-supervisor: Dr. Asghar Ahmadkhanlu

PhD candidate **Abdollah Sarafraz**, *A Geometric Method for Degraded Medical Image Inpainting by Using Digital Shearlet Transform*

2nd-supervisor: Dr. Mehdi Hashemzadeh, Co-adviser: Dr. Parisa Noras

PhD candidate **Sevda Moghadasi**, *The Investigation of Multiresolution Approaches for Chest X-ray Images Based COVID-19 Detection*  
Co-adviser: Dr. Parisa Noras

PhD candidate **Paria Moradi**, *Brain MRI Image Segmentation with Energy Function based on region*  
Co-adviser: Professor Giovanna Castellano (University of Bari, Italy), Dr. Parisa Noras

PhD candidate **Reza Mousavi Moghadam**, *Extracting the Target Regions of Pulmonary CT-Scan Images Using Regional-Based Active Contours*  
Co-adviser: Professor Hadi Seyedarabi (University of Tabriz, Tabriz, Iran), Dr. Parisa Noras

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## Master Students Supervised

in progress **Amin Hassanzadeh**, *Automated Mitosis Detection in Histopathology Based on Non-Gaussian Modeling of Complex Wavelet Coefficients*

Jan 15, 2023 **Elham Mahinjafarzadeh**, *Automatic and fast segmentation of medical images based on level set method using fuzzy clustering and split Bergman method*

Sep 9, 2020 **Nader Belalzadeh**, *Multiscale Edge Detection Using First-Order Derivative of Anisotropic Gaussian Kernels*

Oct 22, 2019 **Arezu Najafi Moghadam**, *Binary Spherical Image Segmentation Using Directional Wavelets*

Oct 22, 2019 **Zahra Salim**, *A New Class of Wavelet-Based Metrics for Image Similarity Assessment*

Oct 22, 2019 **Ziba Kolahduzi pour**, *Image Segmentation by a Novel Binary Level Set Variational Model*

Oct 9, 2018 **Mohamad Habibi**, *An optimization approach to detecting continuous, thin and smooth edges in noisy images*

May 12, 2018 **Zeinab Abdollahi**, *Some Mathematical Methods for Medical Image Segmentation*

Sep 6, 2016 **Abdollah Sarafraz**, *A Shearlet approach to image edge analysis and detection*



- Aug 22, 2016 **Ahmad Meihami**, *Comparison of various Edge Detection Techniques used in Image Processing*
- Aug 22, 2016 **Saleh Sharifi**, *Accurate Subpixel Edge Location based on Partial Area Effect*
- Sep 6, 2016 **Zahra Rezai Shamasbi**, *An edge-preserving multilevel method for deblurring, Denoising and segmentation*
- 28 Feb 2016 **Zahra Safari**, *New model for image restoration with different boundary conditions*
- 28 Feb 2016 **Roqaye Alipour**, *Embedded techniques for choosing the parameter in Tikhonov regularization*
- 6 Oct 2015 **Paria Moradi**, *Image processing with Shearlet systems*
- 22 Sep 2015 **Reza Mousavi Moghadam**, *Image processing with curvelet transforms*
- 17 Feb 2015 **Afsaneh Ghasemkhani**, *Kronecker Product and SVD approximations in image restoration*
- Dec 2014 **Sajad Ektesabi**, *Sylvester Tikhonov- regularization methods in image restoration*
- Sep 2014 **Elaheh Ebrahimi**, *Kronecker Product Approximations for Image Restoration with Anti Reflective Boundary Condition*
- Sep 2014 **Reyhaneh Naghipour**, *Box Spline Wavelet Frames for Image Edge Analysis*
- Feb 2014 **Fatemeh Azarnia**, *Taylor polynomial solutions of nonlinear Volterra–Fredholm integral equations*  
(Islamic Azad University)
- Dec 2013 **Roya Roshan**, *A New Direct Method for Solving Nonlinear Volterra-Fredholm-Hammerstein Integral Equations via Optimal Control Problem*  
(Payame Noor University)

- Oct 2013 **Mohammad Reza Gholypour**, *A random integral quadrature method for numerical analysis of the second kind of Volterra integral equation*
- Sep 2013 **Leila Safakish**, *Cubic Spline Wavelets with Complementary Boundary Conditions*  
(Islamic Azad University)
- July 2013 **Sakineh Nasrollahi**, *Legendre approximation solution for a class of higher order integro-differential equation*
- June 2013 **Parisa Noras**, *The Legendre wavelet method for solving initial value problems of Bratu-type*
- June 2013 **Maryam Norouzi**, *New algorithms for the numerical solution of nonlinear Fredholm and Volterra integral equations using Haar wavelets*
- Feb 2013 **Elham Nikjoo**, *Fast wavelet Galerkin methods for solving integral equations of the second kind*
- Feb 2013 **Reyhaneh Ghiasi**, *Fast Multiresolution Algorithms and Their Related Variational Problems for Image Denoising*
- Oct 2012 **Mehdi Mirzafam**, *Trigonometric Hermite wavelet approximation for the integral equation of second kind with weakly singular kernel*
- Oct 2012 **Amir Mohammadi**, *Multi-projection methods for Fredholm integral equations of the second kind*
- Sep 2012 **Safoura Hashemi**, *Numerical Solutions of Some Linear and Nonlinear Fredholm Integral Equations Using Bernstein Polynomials*  
(Islamic Azad University)
- Sep 2012 **Fatemeh Mahmoudi**, *Solving Some Volterra Integral Equations with Smooth and Weakly Singular kernel*  
(Islamic Azad University)
- Sep 2012 **Mitra Mashayekhi**, *Derivatives of Bernstein Polynomials and their Application for solving High Even-Order Differential Equations*  
(Islamic Azad University)

- July 2012 **Nayer Gholestani**, *Hybrid function method for solving Fredholm and Volterra integral and integro-differential equations*  
(Payame Noor University)
- July 2012 **Mansoureh Esmaili**, *Sinc-Galerkin solution for nonlinear two-point boundary value problems with applications to chemical reactor theory*  
(Payame Noor University)
- April 2012 **Amir Ahmad Khajehnassiri**, *A fast numerical solution method for two dimensional Fredholm integral equations of the second kind*  
(Payame Noor University)
- Sep 2011 **Sedigheh Mohammadi**, *Homotopy perturbation method with some modifications for solving some integral and differential equations and comparison with homotopy analysis method*
- Sep 2011 **Azadeh Omid**, *Some numerical methods for second kind Fredholm integral equations on the real semiaxis*
- Sep 2011 **Farhad Ghorbani**, *Numerical solution of integral equations by means of the Sinc collocation method based on the double exponential transformation*
- Sep 2011 **Ghader Ahmadnezhad**, *Using variational iteration method for solving some kind of integral and differential equation*
- Sep 2010 **Shirin Khezri**, *Wavelet Numerical Solutions for Weakly Singular Fredholm Integral Equations of the Second Kind*
- July 2010 **Medya Siadat**, *Wavelet applications to the Petrov-Galerkin method for Hammerstein equation*
- July 2010 **Mina Shokraie**, *Approximation of Parabolic Integro-Differential Equations Using Wavelet-Galerkin Technique*
- July 2009 **Elahe Ravash**, *Using Petrov-Galerkin Method for Solving Integral Equation of the Second Kind*

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## Administrative Experiences

Feb 3, 20 – **Head of Education Department**

June 21, 21 Azarbaijan Shahid Madani University, Tabriz, Iran

Jan 23, 19 – **Head of Department, *Department of Mathematics***

April 07, 20 Azarbaijan Shahid Madani University, Tabriz, Iran

Aug 11, 18 – **Head of Department, *Department of Applied Mathematics***

Jan 23, 19 Azarbaijan Shahid Madani University, Tabriz, Iran

Oct 2014 – **Vice-Chancellor of Administrative Staff and Financial Affairs**

May 2016 Azarbaijan Shahid Madani University, Tabriz, Iran

Jan 2014 – **Dean of Faculty of Basic Sciences**

Oct 2014 Azarbaijan Shahid Madani University, Tabriz, Iran

Nov 2011 – **Head of Research Department**

Jan 2014 Azarbaijan Shahid Madani University, Tabriz, Iran

Nov 2010 – **Head of Industrial Relations Department**

Nov 2011 Azarbaijan Shahid Madani University, Tabriz, Iran

Nov 2010 – **Co-Head of Department of Mathematics**

Jan 2011 Azarbaijan Shahid Madani University, Tabriz, Iran

2007 **Member of National Arbitration Committee**

Kharazmi Festival, Tehran, Iran

2006 **Member**

Department of Mathematics and Informatics Organization for Educational Research and Planning, Ministry of Education, Iran

2007 - 2013 **Local Representative, *Iranian Mathematical Society***

Azarbaijan Shahid Madani University, Tabriz, Iran

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## Professional Experiences

Sep. 18, **Visiting Professor**

2022 – Department of Mathematics, Izmir Institute of Technology, Izmir, Turkey  
present

Feb 5, 2018 – **Full Professor**

Present Azarbaijan Shahid Madani University, Tabriz, Iran

Dec 09, 18 – **Member of Board of Auditors**

Mar 20, 21 Azarbaijan Shahid Madani University, Tabriz, Iran

- Dec 10, 2016 **Visiting Professor**  
 – Dec 10, 2017 Technische Universität Berlin, Berlin 10623, Germany
- Feb 5, 2013 – **Member of Specialized Commission of the Board of Auditors, Mathematics and Physics sections**  
 Feb 4, 2018 Azarbaijan Shahid Madani University, Tabriz, Iran
- Feb 5, 2013 – **Associate Professor**  
 Feb 4, 2018 Azarbaijan Shahid Madani University, Tabriz, Iran
- 2012 – **Member, Research Group of Processing and Communication**  
 Present Azarbaijan Shahid Madani University, Tabriz, Iran
- 2008-2009 **Part-time lecturer**  
 Payame Noor University, Tabriz, Iran
- Aug 2007 – **Assistant Professor**  
 Feb 2013 Azarbaijan Shahid Madani University, Tabriz, Iran
- 2005-2007 **Part-time lecturer**  
 Islamic Azad University, South Tehran Branch, Tehran, Iran
- 2005-2007 **Part-time lecturer**  
 Shahid Rajaee University, Tehran, Iran
- 2004-2006 **Part-time lecturer**  
 University of Applied Science and Technology, Tehran, Iran
- 2004-2005 **Part-time lecturer**  
 Iran University of Science and Technology, Tehran, Iran

## Organization Activities

- July 20-21, 2016 **Member of scientific committee, The 6th Seminar on Numerical Analysis and Its Applications**  
 University of Maragheh, Maragheh, Iran
- May 27-29, 2015 **Member of scientific committee, 12th seminar on differential equations and dynamical systems**  
 University of Tabriz, Tabriz, Iran
- Aug 26 - 29, 2014 **Member of scientific committee, 33rd annual conference of Iranian Mathematics Society**  
 University of Semnan, Semnan, Iran

Aug 27-30, **Member of scientific committee**, *34th annual conference of Iranian Mathematics Society*  
2012 University of Tabriz, Tabriz, Iran

July 11-13, **Member of scientific committee**, *9th seminar on differential equations and dynamical systems*  
2012 Azarbaijan Shahid Madani University, Tabriz, Iran

July 11-13, **Chair of organizing committee**, *9th seminar on differential equations and dynamical systems*  
2012 Azarbaijan Shahid Madani University, Tabriz, Iran

July 18-19, **Chair of organizing committee**, *1st Regional seminar of mathematics students*  
2011 Azarbaijan Shahid Madani University, Tabriz, Iran

## Verified Reviews (According to the Web of Science™)

According to the Web of Science™, I have 138 Verified peer reviews at the following journals (sorted according to the number of reviews):



Machine Vision and Applications, Signal, Image and Video Processing, Journal of Computational and Applied Mathematics, Computational Methods for Differential Equations, Mathematical Sciences, IEEE Access, Biomedical Signal Processing and Control, EURASIP Journal on Image and Video Processing, International Journal of Computer Mathematics, Progress in Artificial Intelligence, Journal of Mathematics, Mathematical Modeling and Analysis, Mathematical Reviews, The Journal of Supercomputing, Abstract and Applied Analysis, Applied Mathematics and Computation, Applied Numerical Mathematics, Filomat, International Journal of Mathematical Modelling & Computations, International Journal of Systems Science, Journal of Advanced Research in Scientific Computing, Journal of Applied Mathematics and Computing, Journal of Mathematical Modeling, Journal of Taibah University of Science, Sahand Communication in Mathematical Analysis, Thai Journal of Mathematics, Walailak Journal of Science and Technology.

For an updated version, scan the QR code or click here.

## PhD Dissertation Examination

Since July 2011, I was the referee of the doctoral dissertation of a number of students in different universities as follows (in reverse order):

Jan 11, 2023 **Van Tiep Do**, *Theoretical analysis of image separation and image inpainting: A compressed sensing approach*, Technische Universität Berlin, Berlin, Deutschland  
Supervisor: Prof. Dr. Gitta Kutyniok

- July 04, 2022 **Farshad Mehdifar**, *Numerical solution of a class of two-dimensional integral equations via the Boubaker polynomials*, Azarbaijan Shahid Madani University  
Supervisor: Dr. Ali Khani
- May 19 2021 **Majid Bagheri**, *Analytical method for solving some fractional partial differential equations by using beta-fractional derivative*, Azarbaijan Shahid Madani University  
Supervisor: Dr. Ali Khani
- Jan 31, 2021 **Asma Beiranvand**, *Numerical method of orthogonal basis functions for pricing new models of financial derivatives*, Shahid Rajaei University  
Supervisor: Prof. Hamid Mesgarani
- Sep 20, 2020 **Roghayeh Hosseinzadeh**, *Numerical solution of fuzzy integral equation and fuzzy image processing*, University of Mohaghegh Ardabili  
Supervisor: Prof. Mohammad Zarebnia
- Sep 22, 2019 **Hamideh Ghafouri Estiar**, *Numerical solution of fractional partial differential equation and its application in financial mathematics*, Azarbaijan Shahid Madani University  
Supervisor: Prof. Dr Khani & Dr. Mojtaba Ranjbar
- Sep 15, 2019 **Saeid Panahi**, *Using the ultraspherical functions for solving fractional order differential and integro-differential equation*, Azarbaijan Shahid Madani University  
Supervisor: Dr. Ali Khani
- Sep 8, 2019 **Maryam Derakhshan**, *Solution of integral equations using spline quasi-interpolant method*, University of Mohaghegh Ardabili  
Supervisor: Prof. Mohammad Zarebnia
- June 18, 2019 **Mohammad Reza Azizi**, *Numerical solution of fractional order differential equations by operational matrix of sinc functions*, Azarbaijan Shahid Madani University  
Supervisor: Dr. Ali Khani
- May 30, 2018 **Somayeh Abdi-mazraeh**, *Efficient spectral methods for numerical solution of option pricing*, Azarbaijan Shahid Madani University  
Supervisor: Dr. Ali Khani
- Jan 30, 2016 **Leila Shiri**, *Numerical solution of delay integral equations*, University of Mohaghegh Ardabili  
Supervisor: Prof. Mohammad Zarebnia
- Oct 20, 2015 **Zahra Nazemi**, *Investigation on the existence of solution of some fractional differential equations, systems and inclusions by using fixed point theory*, Azarbaijan Shahid Madani University  
Supervisor: Prof. Shahram Rezapour

- April 14, 2015 **Davoud Nazari susahab**, *Analytical-numerical methods for solving including fractional differential equations boundary value problems*, Azarbaijan Shahid Madani University  
Supervisor: Prof. Mohammad Jahanshahi
- Jan 18, 2014 **Hakimeh Mohammadi**, *Solutions of fractional differential equations by using fixed point theory*, Azarbaijan Shahid Madani University  
Supervisor: Prof. Alireza Ghaffari-Hadigheh & Prof. Shahram Rezapour
- Oct 3, 2013 **Ali Karam Ezzeddine**, *Extension of stability region of numerical methods for solving IVPs*, University of Tabriz  
Supervisor: Prof. Gholamreza Hojjati
- Feb 19, 2013 **Mojtaba Sajadmanesh**, *Investigation and reduction of the direct and inverse boundary value problems to Fredholm integral equations of the second kind*, Azarbaijan Shahid Madani University  
Supervisor: Prof. Mohammad Jahanshahi
- July 18, 2012 **Safar Irandoust Pakchin**, *Efficient methods for numerical solution of nonlinear fractional differential equations*, University of Tabriz  
Supervisor: Prof. Hossein Kheiri
- July 11, 2011 **Parviz Darania**, *The modification of advanced numerical methods for integral and integro-differential equations*, University of Tabriz  
Supervisor: Prof. Karim Ivaz

## Languages

- Turkish Native Speaker  
(Azeri)
- Persian Native Speaker
- English Reading, Listening and Writing (Advanced), Speaking (High-Intermediate)  
(according to the TOEFL score report 2022)
- Deutsch Beginner

Last updated: February 20, 2023