

Resume

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Mohammad Ghasemi

Biographical Information

First Name: **Mohammad**
Last Name: **Ghasemi**

Education

Ph.D in Applied Mathematics, Numerical Analysis, at IUST (Iran University of Science and Technology), Tehran, Iran, 2008-2012.
Ph.D Sabbatical Leave in Applied Mathematics, at IST (Instituto Superior Técnico), Lisbon, Portugal, 2010-2011.
M.S.c in Applied Mathematics, at IUST (Iran University of Science and Technology), Tehran, Iran, 2005-2007.
B.Sc in Mathematics at Kharazmi University, Tehran, Iran 2002-2005.

Employment

2013-2018: Assistant Professor, Department Mathematics, Faculty of Sciences, University of Kurdistan, Sanandaj, Kurdistan, Iran.
2018-Current: Associate Professor, Department Mathematics, Faculty of Sciences, University of Kurdistan, Sanandaj, Kurdistan, Iran.

Languages Proficiency

English: Speaking and Writing

Other Language skills

- Kurdish (native language)
- Farsi (secondary native language)
- Arabic (Intermediate)

Software Skills

- Skillful in Mathematica and MATLAB
- Skillful in programming software C, C++ and Python.
- Using Python packages such as TensorFlow, Keras, PyTorch, Pandas, NumPy, Matplotlib
- Skillful in LaTeX
- Familiar with web designing software.

Research Interests

- Numerical solution of differential equations (ODEs, PDEs)
- Fractional calculus
- Numerical Linear Algebra
- Spline, B-spline and Sinc functions
- Data Analysis
- Machine Learning, Deep Learning

Journal papers

- S. Bivani, **M. Ghasemi** and A. Goligerdian, Fractional B-spline collocation method for the numerical solution of the fractional pantograph differential equations, *Boundary Value Problems*, 17(2025).
- **M. Ghasemi**, A Goligerdian, S Moradi, A novel super-convergent numerical method for solving nonlinear Volterra integral equations based on B-splines, *Mediterranean Journal of Mathematics*, 21 (4)(2024), 1-22.
- **M. Ghasemi**, K Mohammadi, A Alipanah, Numerical solution of system of second-order integro-differential equations using nonclassical sinc collocation method, *Boundary Value Problems*, 1 (2023) 38.
- K. Mohammadi, A. Alipanah and **M. Ghasemi**, A nonclassical sinc-collocation method for the solution of singular boundary value problems arising in physiology, *International Journal of Computer Mathematics*, 99(2022) 1941-1967.
- **M. Ghasemi**, On the numerical solution of high order multi-dimensional elliptic PDEs, *Computers & Mathematics with Applications*, 76:5(2018), 1228-1245.
- **M. Ghasemi**, Two-step deferred correction algorithm for the problem of fluid film squeezed between rotating disks, *Engineering with Computers* 35 (2019), 605-618.
- **M. Ghasemi**, An Efficient algorithm based on extrapolation for the solution of nonlinear parabolic equations, *International Journal of Nonlinear Sciences and Numerical Simulation*, 19:1 (2017) 37-51.
- Y. Jalilian and **M. Ghasemi**, On the solutions of a nonlinear fractional integro-differential equation of pantograph type, *Mediterranean Journal of Mathematics*, 14:194 (2017) 1-23.
- **M. Ghasemi**, A new efficient DQ algorithm for the solution of elliptic problems in higher dimensions, *Numerical Algorithms*, 77 (2018) 809-829.
- **M. Ghasemi**, Spline-based DQM for multi-dimensional PDEs: Application to biharmonic and Poisson equations in 2D and 3D, *Computers & Mathematics with Applications*, 73 (2017) 1576-1592.
- **M. Ghasemi**, High order approximations using spline-based differential quadrature method: Implementation to the multi-dimensional PDEs, *Applied Mathematical Modeling*, 46 (2017) 63-80.
- **M. Ghasemi**, Y. Jalilian, J. J. Trujillo, Existence and numerical simulation of solutions for nonlinear fractional pantograph equations, *International Journal of Computer Mathematics*, 94 (2017) 2041-2062.
- **M. Ghasemi**, On using cubic spline for the solution of problems in calculus of variations, *Numerical Algorithms*, 73 (2016) 685-710.

- **M. Ghasemi**, A new superconvergent method for systems of nonlinear singular boundary value problems, *International Journal of Computer Mathematics*, 90 (2013) 955-977.
- **J. Rashidinia, M. Ghasemi**, B-spline collocation for solution of two-point boundary value problems, *Journal of Computational and Applied Mathematics*, 235 (2011) 2325-2342.
- **J. Rashidinia, M. Ghasemi, R. Jalilian**, A collocation method for the solution of nonlinear one-dimensional parabolic equations, *Mathematical Sciences: Quarterly Journal*, 4 (2010) 87-104.
- **J. Rashidinia, M. Ghasemi, R. Jalilian**, An $O(h^6)$ numerical solution of general nonlinear fifth-order two point boundary value problems, *Numerical Algorithms*, 55 (2010) 403-428.
- **J. Rashidinia, M. Ghasemi, R. Jalilian**, Numerical solution of the nonlinear Klein–Gordon equation, *Journal of Computational and Applied Mathematics*, 233 (2010) 1866-1878.

Conference Papers

- **M. Ghasemi, Z. Azimkhani**, On the numerical solution of two-dimensional viscous moving between two porous walls, *The 48th Iranian Mathematics Conference, Hamedan, Iran, August, 2017*.
- **A. Alipanah, M. Ghasemi**, A direct method based on spline for the solution of Brachistochrone problem, *The Sixth Seminar on Numerical Analysis and its Application, Maragheh, Iran, July 2016*.
- **M. Ghasemi, S. Bivani**, Numerical solution of Black-Scholes equation using quadratic B-spline on a non-uniform partition, *The Sixth Seminar on Numerical Analysis and its Application, Maragheh, Iran, July 2016*.

Teaching Experience

Under Graduate

- Numerical Analysis
- Numerical Linear Algebra
- Differential Equations
- Linear Algebra
- General Mathematics
- Numerical Methods for Computer Science
- Basics of Computer and Programming
- Advanced Programming
- Mathematical Software

Graduated

- Numerical Solution of Ordinary Differential Equations
- Numerical Solution of Partial Differential Equations
- Advanced Numerical Analysis

Awards and certificates

- First ranked M.Sc. research student at Iran University of Science and Technology, 2006-2007
- Ranked 1st graduated student at M.Sc., 2007.
- Awarded Ph.D. Full scholarship from Iran Ministry of Sciences 2008.

Membership

- Member of Iranian Mathematical Society
- Reviewer at American Mathematics Society