Hatef Dastour

Website: hatefdastour.github.io
LinkedIn: linkedin.com/in/hatefdastour
Github: github.com/HatefDastour

Summary of skills

Mathematician, data scientist, scientific programming, and model creating

Education

- Ph.D., Applied Mathematics, University of Calgary — January 2016 - December 2019, Calgary, Canada,
- M.S., Applied Mathematics, Damghan University — September 2010 - September 2012, Damghan, Iran,
- B.S., Applied Mathematics, Payam Noor University — September 2006 - July 2010, Tehran, Iran,

Computer Skills

- Proficiency with computer programming including MATLAB, Python, R, Julia Programming, and others.
- Proficiency with SQL server.
- Proficiency with office applications, such as Microsoft Office, LaTeX editors, and more.
- Proficiency with advanced graphical applications, such as Adobe Photoshop, 3D Studio Max, Blender, and more.
- Proficiency with Microsoft, Linux, and Unix command line.

Group Projects

- 2016 Graduate Mathematical Modelling in Industry Workshop, University of British Columbia, Vancouver, BC, Canada, August 08, 2016 - August 13, 2016,

  Project: Modelling the performance of the rechargeable Li-Ion batteries,

- 2016 Industrial Problem Solving Workshop, University of Toronto, Toronto, ON, Canada, August 15, 2016 - August 19, 2016,

  Project: How to combine two relative rankings of credit risk into one ranking?
  by Internal Ratings Management, Global Risk Management, Scotiabank.

Awards

- Student Awards — University of Calgary, Department of Mathematics and Statistics
  - PIMS Doctoral Recruitment Scholarship — 2015–2016
  - Eric Milner Graduate Scholarship — 2016–2017
  - Alberta Innovates Graduate Student Scholarship — 2017–2019

- Travel Awards
  - 2016 CMS Summer Meeting, University of Alberta, Edmonton, AB — June 2016
  - 2016 Graduate Mathematical Modelling in Industry Workshop, Vancouver, BC — August 2016
  - 2016 Industrial Problem Solving Workshop, Toronto, ON — August 2016

Working and Teaching Experience

- Data Scientist Developer at StellarAlgo — January 2020 - Present,
  - Design, develop and refine predictive models for selected business verticals
  - Discover and communicate relevant insights to key stakeholders for smarter decision making
  - Explore opportunities for combining existing and new data sources to discover insights
  - Support requirements gathering and data engineering efforts related to building analytics data sets
  - Support application product team with automated reporting and analytics
  - Author and maintain relevant documentation for developers, auditors, clients and users
  - Program according to project plans (versions, sprints)
  - Participate in data analysis and data architecture direction with valuable client facing development insights
  - Collaborate with our team designers to create interfaces
  - Mentor more junior data science developers in good techniques, patterns, processes and practices
- Instructor:
  - MATH 211 - Linear Methods I - Spring 2019
  - MATH 211 - Linear Methods I - Summer 2018
  - MATH 275 - Calculus for Engineers and Scientists - Fall 2017 (Through Training Program)
- Graduate Teaching Assistant — January 2016 - Present,
  Department of Mathematics and Statistics, University of Calgary,

  I have gained teaching experience by doing a graduate teaching assistant for a variate of courses. These courses are Introductory Calculus (MATH 249), University Calculus I (MATH 265), Calculus for Engineers and Scientists (MATH 275), Multivariable Calculus for Engineers (MATH 277), Differential Equations for Engineers and Scientists (MATH 375), Numerical Analysis I (MATH 391), Numerical Analysis I (AMAT 491) and Numerical Analysis II (AMAT 493).
- Self-employed Mathematics Tutor — October 2010 - August 2015,

Research Experience

- Graduate Student — January 2016 - Ongoing
  Department of Mathematics and Statistics, University of Calgary,

  Developed several robust and accurate (higher-order) finite difference methods for the wave equation in both frequency and time domain.
- Research Assistant — February 2012 - May 2015,
  School of Mathematics, Iran University of Science and Technology

  Constructed numerical schemes using the Mollification method and the Marching scheme to estimate unknown parameters in inverse heat conduction problems
- Graduate Student — October 2010 - August 2012,
  School of Mathematics and Computer science, Damghan University

  Developed some numerical schemes based on the application of the Marching scheme and the Mollification method for finding the stable numerical solution of a class of semi-linear Cauchy problems.

Journal Publications

1. **H. Dastour** and W. Liao. "A fourth-order optimal finite difference scheme for the Helmholtz equation with PML". *Computers & Mathematics with Applications*, 6(78):2147–2165, 2019.
2. W. Liao, P. Yong, **H. Dastour**, and J. Huang. "Efficient and accurate numerical simulation of acoustic wave propagation in a 2d heterogeneous media". *Applied Mathematics and Computation*, 321:385–400, 2018.
3. M. Garshasbi and **H. Dastour**. "A mollified marching solution of an inverse ablation-type moving boundary problem". *Computational and Applied Mathematics*, 35(1):61–73, 2016.
4. M. Garshasbi and **H. Dastour**. "Estimation of unknown boundary functions in an inverse heat conduction problem using a mollified marching scheme". *Numerical Algorithms*, 68(4):769–790, 2015.
5. M. Garshasbi and **H. Dastour**. "Proportional factors estimation in an IHCP". *Journal of Hyperstructures*, 3(1):53–67, 2014.
6. M. Garshasbi, **H. Dastour**, and M. Jalalvand. "A stable numerical solution of an inverse moving boundary problem of heat conduction using discrete mollification approach". *Advances in Mathematical Modeling*, 2(1):47–60, 2012.
7. M. Garshasbi, P. Reihani, and **H. Dastour**. "A stable numerical solution of a class of semi-linear Cauchy problems". *Journal of Advanced Research in Dynamical and Control Systems*, 4:56–67, 2012.

Preprints

1. **H. Dastour**, W. Liao, "A fourth-order optimal finite difference scheme for the Helmholtz equation based on point-weighting", 2019. Submitted to *Journal of Computational and Applied Mathematics*.
2. **H. Dastour**, W. Liao, "An optimal 13-point finite difference scheme for the Helmholtz equation with PML", 2019. minor acceptance: A revision submitted to *Numerical Algorithms*.
3. **Hatef Dastour** and Wenyuan Liao. "A generalized optimal fourth-order finite difference scheme for a 2D Helmholtz equation with the perfectly matched layer boundary condition". *arXiv preprint arXiv:1908.07403*, 2019.
4. **Hatef Dastour**, Wenyuan Liao, "An optimal 13-point finite difference scheme for the Helmholtz equation with PML", 2019. Submitted to a Springer journal.

Selected Presentations

1. H. Dastour, "Computational Methods for Solving Wave Equation Inverse Problem", Eric Milner Colloquium, University of Calgary, Calgary, AB, Canada, October 14, 2016 (Colloquium Presentation).
2. H. Dastour, "A stabilized marching scheme for solving the inverse problem of degenerate diffusion model", the Canadian Society of Applied and Industrial Mathematics (CAIMS 2016), University of Alberta, Edmonton, AB, Canada, June 28, 2016 (Conference Presentation).
3. H. Dastour, "A numerical estimation approach for an inverse heat conduction problem", 2016 CMS Summer Meeting, University of Alberta, Edmonton, AB, Canada, June 24, 2016 (Conference Presentation).
4. H. Dastour, "A Computational Method for Solving an Inverse Heat Conduction Problem", 2016 CMS Summer Meeting, University of Alberta, Edmonton, AB, Canada, June 25, 2016 (Conference Poster Presentation).
5. H. Dastour, "A mollified marching solution of an inverse degenerate diffusion problem in petroleum reservoir", Alberta Mathematics Dialogue 2016, Mount Royal University, Calgary, AB, Canada, April 29, 2016 (Conference Presentation).

Certifications

- Recognition of outstanding efforts and accomplishments on behalf of the SIAM Chapter at the University of Calgary, Canada.
- Recognition of the Completion of the Instructional Skills Workshop
  August 30, 2016 - September 2, 2016,
- Certificate of Appreciation for having made valuable contributions to the June 2016 Convocation Ceremonies.

Volunteer Activities

- Contribution to 2018 Industrial Problem Solving Workshop (IPSW), University of Calgary
  Calgary, Canada August 19, 2018 - August 24, 2018,
- Serving on Mathematics and Statistics (MTST) Head Search Committee, University of Calgary,
  Calgary, Canada March 2018,
- Instructor of Programming Workshop at 2017 CMS Math Camp (Alberta), University of Calgary,
  Calgary, Canada July 2017,
- Contribution to the June 2016 convocation ceremonies, University of Calgary,
  Calgary, Canada June 2016,
- The vice-president academic of Graduate University Mathematics Society (GUMS), University of Calgary
  Calgary, Canada September 2016 - September 2018,
- The representative of graduate students of the Department of Mathematics and Statistics in the Graduate Committee of the department, University of Calgary,
  Calgary, Canada October 2016 - September 2018,
- The president of University of Calgary SIAM Student Chapter, University of Calgary,
  Calgary, Canada January 2017 - September 2018,
- Organizer of the University of Calgary Chapter of SIAM Biweekly Seminar Series
  Calgary, Canada February 2017 - April 2018,
- Organizer of Calgary Applied and Industrial Mathematical Sciences Conference
  Calgary, Canada May 21, 2017 - May 22, 2017.

Languages

English and Persian