

# Europass Curriculum Vitae



## Personal information

Surname(s) / First name(s)  
Email(s)  
Nationality(-ies)  
Date of birth

### Ghaffari-Hadigheh, Alireza

hadigheha@azaruniv.edu, hadigheha@gmail.com, hadigheha@yahoo.com  
Iranian  
30 march, 1961

## Professional experience

2015 (Aug.) 2014 - ...	Visiting researcher in Uncertainty Laboratory, Tsinghua University, Beijing, China Managing Editor and editorial board member of <i>Communications in Combinatorics and Optimization</i>
2009 ( Nov.)- ...	Associate professor, Azarbaijan Shahid Madani University, Tabriz, Islamic Republic of Iran
2009- 2013	Adjunct Lecturer of postgraduate department (MBA Program), University College of Nabi Akram, Tabriz, Iran
2004- ...	Adjunct Lecturer of postgraduate department, Payam-e-Noor University, Tabriz, Iran
2007 (Aug.)	Visiting researcher in Department of Computing and Software, McMaster University, Hamilton, Canada.
2006 (Jul.)	Visiting researcher in Department of Computing and Software, McMaster University, Hamilton, Canada.
2006 (Mar.)-2009 ( Nov.)	Assistant professor of Mathematic Department, Azarbaijan University of Tarbiat Moallem (former name for Azarbaijan Shahid Madani University), Tabriz, Iran.
2004-2006	Assistant Professor, Department of Basic Science and Statistics, Imam Hossain University, Tehran, Iran.
2004 (Aug.-Sep.)	Visiting researcher in Department of Computing and Software, McMaster University, Hamilton, Canada.
2003 (Mar.- Dec.)	Visiting Ph.D. student in Department of Computing and Software, McMaster University, Hamilton.
1995-1999	Lecturer, Department of Basic Science and Statistics, Imam Hossain University, Tehran, Iran.
1993-1995	Visiting lecturer in Department of Mathematics, Sahand University of Technology , Tabriz, Iran.
1992-1993	Lecturer, Department of Basic Science and Statistics, Imam Hossain University, Tehran, Iran.

## Administrative experience

2012- 2014(June)	Head of Department of Applied Mathematics.
2010 (May)- 2013(May)	Member of Steering Committee, Iranian Operations Research Society
2008(Dec.)- 2011(May)	Head of University Budget Office.
2007(Dec.)- 2008(Dec.)	Head of Department of Mathematics.

2006(Feb.)- 2007(Dec.)

## Reviewer for (selection)

Vice President of University in Students Affair.

- Annals of Operations Research
- Advanced Modeling and Optimization
- Optimization Methods and Software
- Optimization and Engineering
- European Journal of Operational Research
- Journal of Industrial and Management Optimization
- Neural Computing and Applications

## Education and training

1999-2004

Ph.D. Student in department of Mathematic, Tabriz University, Tabriz, Iran. Ph.D. Thesis title: *Sensitivity Analysis in linear and convex quadratic optimization*.

1989-1991

Master Student in department of Mathematic, Tabriz University, Tabriz, Iran. M.S. Thesis title: On the existence of Hadamard Tournaments.

1980-1986

B.S. student, Mathematics, University of Tabriz, Tabriz, Iran.

## Personal skills and competences

Mother tongue(s)

Other language(s)

*Self-assessment*  
*European level*

**English**

**Farsi**

Computer skills and competencies

## Azeri

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
Good	Good	Good	Good	Good
Native	Native	Native	Native	Native

MatLab, CPLEX

## Research Projects

2003

Parametric Programming and Its Applications to Portfolio Models, (joint work with O. Romanko), supervised by T. Terlaky.

2004

Sensitivity analysis in linear and convex quadratic optimization: Invariant active constraint set and invariant set intervals (Joint work with T. Terlaky and K. Mirnia) Supported by Research Institute for Fundamental Sciences.

2005

Support set expansion sensitivity analysis in convex quadratic optimization (joint work with K. Mirnia), supported by the research department of Tabriz University.

## Publication

**Book**

2011

Discrete Mathematics and Application [Second edition of the Introduction to Discrete Mathematics] (In Persian) - Tehran, Iran, Imam Hossain University Publishing.

2001 Introduction to Discrete Mathematics (In Persian) - Tehran, Iran, Imam Hossain University Publishing.

2000 Introduction to Cryptography (In Persian), Tehran, Iran, Imam Hossain University Publishing.

### Book Chapter Contribution

2012 Romanko, O., Ghaffari-Hadigheh, A., and Terlaky, T. Multiobjective Optimization via Parametric Optimization: Models, Algorithms and Applications. Chapter 5 in Springer Proceedings in Mathematics and Statistics, Volume 21, pp. 77-119.

### Published Papers

A novel DEA model based on Uncertainty Theory (joint work with Zahra Mohammad-Nejad), Ann Oper Res DOI 10.1007/s10479-017-2652-7, 7.Oct. 2017

Determining Optimum premiums for homogenous risk groups, A case study (joint work with Mahnaz Manteqipour and Amir Safari), (In Persian), To appear in Journal of operations research in its Application, 2017

Dynamic network interdiction problem with uncertain data (joint work with M. Soleimani-Alyar), Int. J. of Uncertainty, Fuzziness & Knowledge-Based Systems (IJUFKS), 2017, Accepted.

Solving multi-period interdiction via generalized Bender's decomposition (Joint work with M. Soleimani), Acta Mathematicae Applicatae Sinica, 2017, Volume 33, Issue 3, pp 633–644.

Grouping objects in homogeneous classes satisfying requisite mass (joint work with Mahnaz Mantqipour, MahmoodVand and Safari), Journal of AI and Data Mining, Vol 6, No 1, 2018, 163-175.

Linear Programming in Uncertain Environment (In Persian), Journal of operations research in its Application, 50:3, 27-50 (2016).

A Novel Metaheuristics for Optimization Inspired by Mother-Infant Communication in Animal Colonies, Journal of Hyperstructures, 5 (2), 169-181, (2016).

Uncertain Weighted Dominating Set: A prototype Application on Natural Disaster Relief Management (joint work with Mehdi Djahangiri), Soft computing, publish online DOI: 10.1007/s00500-016-2404-7 (17 Oct. 2016).

Short-Term Scheduling of Multiple Source Pipelines with Simultaneous Injections and Deliveries (Joint work with H. Mostafaei, P. M. Castro), Computers & Operations Research, Volume 73, September 2016, Pages 27–42.

Semidefinite relaxation for dominating set (Joint work with M. Djahangiri), Iranian Journal of Operations Research. Vol 6. No.1, 2015, Published: 2017/03/27.

Controlling floods by optimization methods (Joint work with M. Soleimani and F.Sadeghi), Water Resources Management. September 2016, Volume 30, Issue 12, pp 4053–4062.

A Novel Monolithic MILP Framework for Lot-Sizing and Scheduling of Multiproduct Tree-like Pipeline Networks (Joint work with H. Mostafaei and P. M. Castro), Industrial & Engineering Chemistry Research. 2015, 54 (37), pp 9202–9221

**Matrix Perturbation and Optimal Partition Invariancy in Linear Optimization (Joint work with N. Mehanfar), Asia Pac. J. Oper. Res, Volume 32, Issue 03, June 2015**

**On the scheduling of real world multiproduct pipelines with simultaneous delivery (Joint work with H. Mostafaei), Optimization and Engineering, September 2015, Volume 16, Issue 3, pp 571-604**

**A General Modeling Framework for the Long-Term Scheduling of Multiproduct Pipelines with Delivery Constraints** (Joint work with H. Mostafaei), *Industrial & Engineering Chemistry Research*, 2014, 53 (17), pp 7029–7042.

Interpretation of Different Approaches to Sensitivity Analysis in Cash Flow Problem, *MATEMATIKA* 29 (1b), 1-9. 2013

**Bi-parametric convex quadratic optimization** (Joint work with O. Romanko and T. Terlaky), *Optimization Methods & Software*, 25 (2), 229-245.

Bi-Parametric Optimal Partition Invariancy Sensitivity Analysis in Linear Optimization, (Joint Work with H. Ghaffari-Hadigheh and T. Terlaky), *Central European Journal of Operations Research* (2008) 16:215-238.

Sensitivity analysis in convex quadratic optimization: Simultaneous perturbation of the objective and right-hand-side vectors, (Joint work with O. Romanko and T. Terlaky), *Algorithmic Operations Research*, Vol.2 (2007), pages 1000-1017.

Support set invariancy sensitivity analysis in bi-parametric linear optimization, (Joint work with M. Dehghan and K. Mirnia), *Advanced Modeling and Optimization, An Electronic International Journal*, Volume 9, No. 1, 2007, Pages 81-89.

Support set expansion sensitivity analysis in convex quadratic optimization, (Joint work with K. Mirnia) To Appear in *Optimization Methods and Software* , Volume 22 Issue 4 2007, pages 601-616.

Generalized support set invariancy sensitivity analysis in linear optimization, (Joint work with T. Terlaky), *Journal of Industrial and Management Optimization (JIMO)*, Volume: 2, No. 1, February 2006.

Sensitivity analysis in linear and convex quadratic optimization: Invariant active constraint set and invariant set intervals. *Information Systems and Operations Research (INFOR)*. (Joint work with K. Mirnia and T. Terlaky), Volume 44, No. 2, May 2006, Pages 129-155.

Active Constraint Set Invariancy Sensitivity Analysis in Linear Optimization. (Joint work with K. Mirnia and T. Terlaky), *Journal of Optimization Theory and Application (JOTA)*, Volume 133, Number 3, June, 2007, pages 303-315.

**Sensitivity Analysis in Linear Optimization: Invariant Support Set Intervals.** (Joint world with T. Terlaky) *European Journal of Operations Research*. Volume 169, Issue 3, 16. March 2006, Pages 1158-1175.

Sensitivity analysis in convex quadratic optimization: invariant support set intervals. (Joint world with T. Terlaky), *Optimization*, Vol.ume 54, No. 1. February 2005 , Pages 59-79.

Homographic Interpolation (In Persian)- Farhang va Andishe-ye Riazi (An Expository Journal of Iranian Mathematical Society), Volume 19 (2), Fall 2000, Pages 11-22.

## Submitted Manuscripts

Application of Dempster-Shafer Theory in Combining the Experts' Opinions in DEA (joint work with Omid Yahgubi Agreh)

Optimal Pricing Strategy in Uncertain Dual Distribution Channel with Retail Services (joint work with Saied Farham-Nia)

Network Interdiction Problem with Effectual Interdicting Deadline on Arcs (joint work with M. Soleimani-Alyar)

Uncertain network interdiction problem (joint work with M. Soleimani-Alyar)

## Published Reports

## Talks at Universities and Conferences

Sensitivity analysis in linear and convex quadratic optimization: Invariant active constraint set and invariant set intervals, (Joint work with K. Mirnia and T. Terlaky) AdvOL-Report No. 2004/12, 2004.

Sensitivity Analysis in Convex Quadratic Optimization: Invariant Support Set Intervals, (Joint work with T. Terlaky) AdvOL-Report No. 2003/7, 2003.

Simultaneous Perturbation Parametric Analysis in Convex Quadratic Optimization, (Joint work with O. Romanko and T. Terlaky) AdvOL-Report No. 2003/6.2003.

Sensitivity Analysis in Linear Optimization: Invariant Support Set Intervals (Joint work with T. Terlaky) AdvOL-Report No. 2003/5. 2003.

Relation Between the Optimal Partition Invariance Interval in Linear Parametric Optimization and the Confidence Level in an Uncertain Linear Optimization, The Fourteenth International Conference on Information and Management Sciences, August 4-10, 2015, Guiyang, China.

Supply chain coordination with buyback contract in uncertain environment, 8th International Conference of the Iranian Society of Operations Research, Ferdowsi University of Mashhad, May 21-22, 2015.

Interpretation Of Different Approaches To Sensitivity Analysis In Cash Flow Problem, 1st ISM International Statistical Conference (ISM-1 2012)

Further developments in semidefinite relaxation for domination number of graphs, Mini EURO Conference EUROPT 2010, Izmir, Turkey, 2010.

NETWORK INTERDICTION, 2th workshop on Optimization and its Applications K.N. Toosi University of Technology, Tehran, Iran, May 4, 2010.

Semidefinite optimization approach towards domination number in graphs, 23rd European Conference on Operational Research Bonn, July 5 - 8, 2009.

Linear Optimization Relaxation for Dynamic Domination Number The 2nd International Conference of Iranian Operations Research Society May 20-22, 2009 Babolsar, Iran.

Subdivision number and Optimization, Veszprem Optimization Conference: Advanced Algorithms, Veszprem Hungary, 2008.

New Paradigms in Sensitivity analysis of Linear optimization, 38 th Iranian International Conferences on Mathematics, Zanjan, Iran, 2007.

Matrix perturbation and support set invariancy in linear optimization, ICCOPT-MOPTA2007, McMaster University, Ontario, Canada, August 13-16, 2007.

Bi-Parametric Optimal Partition Invariancy Sensitivity Analysis in Linear Optimization, MOPTA 06, University of Waterloo, Ontario, Canada, July 24-27, 2006.

Support Set Sensitivity Analysis in Bi-parametric Linear Optimization, International Symposium on Mathematical Programming (ISMP), Rio de Janeiro, Brazil, 2006.

Duality theory in linear optimization and its relation to minimum wage and interest rate (In Persian). 37th Iranian International Conferences on Mathematics, Tabriz, Iran, 2006.

Generalized support set invariancy sensitivity analysis in linear optimization, 8th Conference of SIAM on Optimization, Stockholm, Sweden, 2005.

Sensitivity analysis in convex quadratic sensitivity analysis, 35th Iranian International Conferences on Mathematics, Ahwaz, Iran, 2004.

Sensitivity Analysis in Linear Optimization: What managers want to know? Second International Conference on Management , Tehran, Iran, 2004.

Sensitivity Analysis in Linear Optimization: Invariant Active Constraint Set and Invariant Partition Intervals, WindSOR/SWORD, Windsor, Ontario, Canada, August 2004.

Sensitivity Analysis In Linear Optimization: Invariant Active Constraint Set and Invariant Partition Intervals, MOPTA 04, Hamilton, Ontario Canada, 2004.

Sensitivity Analysis in Linear and Convex Quadratic Optimization Problems, Invariance Intervals, MOPTA 03, Hamilton, Ontario Canada, 2003. (15) The Simplex Method and QR Decomposition, International Workshop on Numerical Linear Algebra, Numerical Methods for PDE, Optimization, Curitiba, Brazil, 2001.

Modified Gaussian Integration, Third Seminar on Numerical Analysis and its Application, Zahedan, Iran, 2000.

New Orthogonal Polynomials, International Conference of Applied Mathematics - Tehran - Iran - 2000.

Rational Semi-Quadratic Spline interpolation to functions of Class  $C^1$ , International Conference on Computer and Imaging (CGIM2000), Las Vegas, USA- 2000.

Rational Spline Interpolation, 30th Iranian International Conferences on Mathematics, Ardebil, Iran, 1999.

An Extension of PLAYFAIR Cryptography Method, 29th Iranian International Conferences on Mathematics, Tehran, Iran, 1998.

## Graduated Master Students:

As Adviser

2016: Nasim Mongeri, Fatemeh Safvati, Firozeh Mardi, Zahra Abdeli, Fakhri-Sadat MirShafiee

2015: Saleh Sajadmanesh

2014: Reza madadi, Mirabdollahi

2013: Sahar Kavian, Samaneh Rouhani, Moloud Ranjnar, Zakieh Nikofar

2012: Solmaz Ahmadi, Zahra Firouzi, Voria Vakili

2011: Atefeh Ranjbaran, Arefeh Bayaz, Samaneh Mohajeri

2010: Raana Ahmadi, Mina Ahmadi

2009: Mehdi Dghangiri, Leila Jalalzadeh, Mina Ahmadi

2008: Fatemeh FaridKhah, Behzad Ashayeri, Tahereh Boodaghi

Tabriz University: Dehghan(2006), Faghan(2008)

Payame-Nour University: Sarieh Hoseinpour(2012), JalilZadeh(2009), Tajbakhsh (2008), Jahangiri(2008), Mehanfar(2008), Ghobadi(2007), Dadashi (2007), Barati (2006), Tajedini (2006), Nikbakht (2005), Farid(2004)0

As Co-Adviser

2012: Zahra Ashrafi

2009: Momivand, MohammadNejad, Razavi.

2008: NaghshBandi, Haghi, Chameh, Mahaki, AghajanZadeh (Electric Engineering Dept.)

2007: Rahmani

2006: HasanZadeh, Aram

**Graduated PhD  
Students:**

2017: Mahnaz Manteqipour

2016: Mehdi Djahangiri, Mariam Solymani Alyar, Hossein Mostafaiee

2010: Hakimeh Mohammadi

**Current Master  
Students:**

2016: Zeinab Zare, Roghayeh Shakouri

**Current Ph.D. Students:**

2014: Nayyer Mahanfar, Somayyeh Bakhteh

2013: Omid Yagoubu, Zahra Mohammad-Nejad