

## Ali Mohammad-Nezhad

---

CONTACT INFORMATION	200 W Packer Ave Industrial and Systems Engineering Lehigh University Bethlehem, PA 18015 USA	<a href="http://coral.ise.lehigh.edu/alm413/">http://coral.ise.lehigh.edu/alm413/</a> alm413@lehigh.edu
RESEARCH INTERESTS	Theory of conic optimization, facial reduction, optimal partition, perturbation and stability analysis with variational analysis point of view, Semi-infinite optimization, Nonlinear optimization	
LANGUAGE	<b>Persian (Native)</b> <b>English (Fluent)</b> <ul style="list-style-type: none"><li>• Excellent writing, listening and speaking skills</li></ul>	
EDUCATION	<b>Lehigh University</b> , Bethlehem, Pennsylvania USA Ph.D., Industrial and Systems Engineering, <i>Expected: May 2018</i> <ul style="list-style-type: none"><li>• Research Topic: <i>Sensitivity and stability analysis in conic optimization</i></li><li>• Advisor: Tamás Terlaky</li><li>• GPA: 3.95/4</li></ul> <b>Tehran Polytechnic</b> , Tehran Iran M.S.c., Industrial and Systems Engineering, Jan. 2013 <ul style="list-style-type: none"><li>• Advisor: Abolfazl Ghaemi</li><li>• GPA: 19.20/20</li></ul> <b>Sharif University of Technology</b> , Tehran Iran M.S.c., Industrial Engineering, Jan. 2011 <ul style="list-style-type: none"><li>• Thesis: <i>Two simulation optimization based artificial neural networks algorithms for constrained simulation optimization problems with stochastic constraints</i></li><li>• Advisor: Hashem Mahlooji</li><li>• GPA: 17.89/20</li></ul> <b>Sharif University of Technology (Golpayegan College of Engineering)</b> , Golpayegan Iran B.S.c., Industrial Engineering, Jan. 2008 <ul style="list-style-type: none"><li>• GPA: 18.17/20</li></ul>	
AWARDS	<ul style="list-style-type: none"><li>• Rossin Doctoral Fellow, College of Engineering, Lehigh University Apr. 2016.</li><li>• 2016 Van Hoesen Family ISE Best Publication Award (Honorable mention), Industrial and Systems Engineering, Lehigh University Apr. 2016.</li></ul>	

- Deans Doctoral Assistantship, Industrial and Systems Engineering, Lehigh University  
Sept. 2013
- Grant for graduate studies from Iran National Elites Foundation                      May 2011
- 16st in the Nationwide Graduate Admission Test    May 2008
- 1st among 30 undergraduate students in Industrial Engineering                      Jun. 2008

REFEREED  
JOURNAL  
PUBLICATIONS

1. **Mohammad-Nezhad A.**, Terlaky T. A rounding procedure for semidefinite optimization. Submitted to Operations Research Letters, July 2017.
2. **Mohammad-Nezhad A.**, Terlaky T. On the identification of optimal partition for semidefinite optimization. Submitted to the European Journal of Operational Research, June 2017.
3. **Mohammad-Nezhad A.**, Terlaky T. A polynomial primal-dual affine scaling algorithm for symmetric conic optimization. Computational Optimization and Applications (2017) 66:577-600.
4. **Mohammad Nezhad A.**, Mahlooji H. An artificial neural network meta-model for constrained simulation optimization. Journal of the Operational Research Society 2014;65(8): 1232-1244.
5. **Mohammad Nezhad A.**, Manzour H, Salhi S. Lagrangian relaxation heuristics for the uncapacitated single-source multi-product facility location problem. International Journal of Production Economics 2013;145(2):714-24.
6. **Mohammad Nezhad A.**, Aliakbari Shandiz R, Eshraghniaye Jahromi A H. A particle swarm-BFGS algorithm for nonlinear programming problems. Computers and Operations Research 2013;40(4): 963-72.
7. **Mohammad Nezhad A.**, Mahlooji H. A revised particle swarm optimization based discrete Lagrange multipliers method for nonlinear programming problems. Computers and Operations Research 2011;38(8):116474.

PAPERS IN  
PREPARATION

1. **Mohammad-Nezhad A.**, Terlaky T. On the identification of optimal solutions for second-order conic optimization: Exact rounding and quadratically convergent procedure.
2. **Mohammad-Nezhad A.**, Terlaky T. Optimal partition for second-order conic optimization: A conjecture.
3. **Mohammad-Nezhad A.**, Terlaky T. On the parametric analysis of semidefinite and second-order conic optimization.
4. **Mohammad Nezhad A.**, Tahernejad S., Seifi A. Incorporating clique inequalities into a Lagrangian relaxation method for a single-source uncapacitated facility location problem.

## TALKS

- On the identification of optimal partition and optimal solutions for semidefinite optimization, MOPTA Conference, Lehigh University. Aug. 2017
- On the identification of optimal partition for second-order optimization, Poster Competition, NemFest 2017, Atlanta GA. May. 2017
- Numerical issues in the interior point methods, in: Computational methods of Optimization, offered by Prof. Martin Takáč in Fall 2016, Industrial and Systems Engineering department, Lehigh University. Dec. 2016
- On the identification of optimal partition for semidefinite optimization, Poster competition, Informs Annual Meeting, Nashville TN. Nov. 2016
- Rounding procedures for a maximally complementary solution of second-order conic optimization, Informs Annual Meeting, Nashville TN. Nov. 2016
- Rounding procedures for a maximally complementary solution of second-order conic optimization, COR@L seminar, Lehigh University. Sept. 2016
- A rounding procedure for second-order conic optimization, MOPTA Conference, Lehigh University. Aug. 2016
- On the identification of optimal partition for semidefinite optimization, Informs Optimization Society Conference, Princeton University. Mar. 2016
- A rounding procedure for a maximally complementary solution of semidefinite optimization problems, COR@L seminar, Lehigh University. Nov. 2015
- A rounding procedure for a maximally complementary solution of semidefinite optimization problems, Informs Annual Meeting, Philadelphia PA. Nov. 2015
- A polynomial primal-dual affine scaling algorithm for symmetric conic optimization, ISMP, Pittsburgh. Jul. 2015
- A polynomial primal-dual affine scaling algorithm for symmetric conic optimization, COR@L seminar, Lehigh University. Oct. 2014
- Incorporating clique inequalities into a Lagrangian relaxation framework for a facility location problem, COR@L seminar, Lehigh University. Nov. 2013

RESEARCH  
EXPERIENCE

- Characterization of the nonlinearity intervals of the optimal value function for conic optimization. Jan. 2017
- Stability analysis of the optimal value function and optimal set-valued mapping for conic optimization. Sept. 2016
- Quadratic convergence of the Newton's method for second-order conic optimization. Jan. 2016
- Facial reduction and Holderian error bounds for semidefinite optimization. Jan. 2015
- Complexity analysis of semidefinite optimization problems using the first order theory of reals. Dec. 2014

Identification of the optimal partition for conic optimization. Sept. 2014

A primal-dual Dikin affine scaling algorithms for symmetric conic optimization. Jan. 2014

A Lagrangian relaxation based semidefinite relaxation algorithm for a multi product facility location problem. May 2013

A Lagrangian relaxation-cutting planes algorithm for a multi product facility location problem. May 2013

The application of the generalized Benders decomposition for solving a non-convex mixed integer nonlinear programming. Jul. 2010

ACADEMIC  
EXPERIENCE

**Journal Referee** Jan. 2011 to present

- Annals of Operations Research
- Optimization Letters
- Optimization Methods and Software
- Modeling and Optimization, Theory and Applications
- Computational Optimization and Applications
- Numerical Algorithms
- CALCOLO
- Computers and Operations Research

**Teaching Assistant** Jan. 2016 to May 2016

- Optimization methods and Software  
Industrial and Systems Engineering Department  
Lehigh University

**Teaching Assistant** Jan. 2015 to May 2015

- Stochastic models and applications, Supply chain management  
Industrial and Systems Engineering Department  
Lehigh University

**Teaching Assistant** Sept. 2014 to Dec. 2014

- Optimization models and applications,  
Industrial and Systems Engineering Department  
Lehigh University

**Teaching Assistant** Jan. 2014 to May 2014

- Engineering economics,  
Industrial and Systems Engineering Department  
Lehigh University

**Teaching Assistant** Sept. 2013 to Dec 2013

- Game theory, Design of experiments,  
Industrial and Systems Engineering Department  
Lehigh University

**Teaching Assistant** Jan. 2010 to May 2010

- Reliability Engineering,  
Industrial Engineering Department

Sharif University of Technology

**Teaching Assistant**

Jan. 2007 to May 2007

- Operations Research,  
Industrial Engineering Department  
Golpayegan College of Engineering

**Teaching Assistant**

Jan. 2006 to May 2006

- Operations Research,  
Industrial Engineering Department  
Golpayegan College of Engineering

RELEVANT  
COURSE WORK

**Lehigh University**

Convex optimization, Conic optimization, Nonlinear optimization, Mathematical optimization, Integer optimization, Advanced algorithms, Stochastic models and applications, Differential geometry of curves and surfaces, Principles of analysis, Real analysis (audited), General topology (audited), Group and Rings (audited), Computational methods in optimization, Advanced programming techniques

**Tehran Polytechnic**

Mathematical programming, Nonlinear optimization, Interior point methods

**Sharif University of Technology**

Integer optimization, Advanced linear optimization, Graph theory, Combinatorial optimization, Regression analysis, Stochastic processes, Design of experiments, Queuing theory

PROFESSIONAL  
EXPERIENCE

- Operations Research fellow at SAS company, Research and Development division,  
Cary, NC. Jun. 2017 to Aug. 2017
- Operations Research intern at SAS company, Research and Development division,  
Cary, NC. Jun. 2016 to Aug. 2016
- System administrator, Coral lab, Industrial and Systems Engineering, Lehigh University.  
Sept. 2015 to present

COMPUTER SKILLS

- Operating Systems: Unix/Linux (Arch linux, Debian, Ubuntu, OS X), Windows
- Languages: C/C++, python, Java, shell scripting, Cuda-GPU computing, parallel computing (Intel TBB, OpenMP, MPI, Pthreads), MATLAB
- Linear algebra libraries: cublas, Math Kernel Library

REFERENCES

Tamaś Terlaky

Professor  
Industrial and Systems Engineering  
Lehigh University

Phone: (610)758-4050  
E-mail: tat208@lehigh.edu

Katya Scheinberg  
Professor  
Industrial and Systems Engineering  
Lehigh University

Phone: (610)-758-4039  
E-mail: [katyas@lehigh.edu](mailto:katyas@lehigh.edu)

Luis F. Zuluaga  
Associate Professor  
Industrial and Systems Engineering  
Lehigh University

Phone: (646)789-5490  
E-mail: [frank.e.curtis@gmail.com](mailto:frank.e.curtis@gmail.com)