

Sahar Tahernejad

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| CONTACT INFORMATION | 200 W. Packer Ave. Industrial and Systems Engineering Lehigh University Bethlehem, PA 18015 USA | Cell: 610-608-1946 sat214@lehigh.edu http://coral.ise.lehigh.edu/sat214/ |
| RESEARCH INTERESTS | Discrete optimization, multi-level optimization, stochastic optimization, computational optimization, scheduling | |
| EDUCATION | Lehigh University , Bethlehem, Pennsylvania USA Ph.D., Industrial and Systems Engineering (Aug. 2014 to Dec. 2019) <ul style="list-style-type: none">• Thesis: <i>Two-stage mixed integer stochastic bilevel linear optimization</i>• Advisor: Theodore K. Ralphs• GPA: 3.78/4 Sharif University of Technology , Tehran Iran M.S., Industrial Engineering (Sept. 2010 to Sept. 2012) <ul style="list-style-type: none">• Thesis: <i>Train scheduling on a two-way and single track railway line considering the train stops for prayer</i>• Advisor: Nasser Salmasi• GPA: 18.34/20 Sharif University of Technology , Tehran Iran B.S., Industrial Engineering (Sept. 2006 to Sept. 2010) <ul style="list-style-type: none">• Thesis: <i>Investigation of imperialist competition algorithm</i>• Advisor: Nasser Salmasi• GPA: 17.85/20 | |
| SOFTWARE | <ul style="list-style-type: none">• MibS: Open-source solver for mixed integer bilevel optimization problems (COIN-OR project) | |
| PROFESSIONAL EXPERIENCE | <ul style="list-style-type: none">• COIN-OR organization member Sept. 2018 to present• Operations Research fellow at SAS institute, Operations Research Development division, Cary, NC Jun. 2017 to Aug. 2017 | |
| COMPUTER SKILLS | <ul style="list-style-type: none">• Operating Systems: Unix/Linux (Debian, Arch Linux), Windows• Programming languages: C/C++, Parallel computing with OpenMP and MPI, Objected-oriented programming, Bash scripting, AWK, Python, MATLAB• Linear algebra packages: BLAS, Intel Math Kernel Library, LAPACK• COIN-OR projects: MibS, SYMPHONY, CHiPPS, CLP, CBC, CGL, OSI• Big data computing framework: Apache Spark | |

- Mathematical modeling: LINGO, AMPL, GAMS
- Optimization solvers: GUROBI, MOSEK, SeDuMi, CPLEX
- Statistical Packages: R, Minitab, SAS
- Simulation: Rockwell Arena

PROJECT
EXPERIENCE

- Study on polytope separator for binary classification in machine learning May. 2016
- Implementation of a branch-and-cut algorithm for integer bilevel optimization problems in SYMPHONY in C Dec. 2015
- Clustering users and movies on the Movie Lens data by using Apache Spark computing framework Dec. 2015
- Approximation of value function with least squares policy evaluation algorithms for robot navigation problem Dec. 2015
- Implementation of Conjugate Gradient (CG) method for large systems of equations by employing MPI Nov. 2015
- Implementation of revised simplex algorithm by employing the product form of the inverse method (PFI) and Bartels-Golub approach in C++ Nov. 2015
- Implementation of a line search and trust region based optimization package for unconstrained nonlinear optimization in MATLAB Apr. 2015
- Implementation of a dictionary class with different operations in Python Apr. 2015
- Implementation of the parallel Strassen's algorithm in a sparse matrix class by employing OpenMP in C++ Mar. 2015
- Implementation of spatial branch-and-bound algorithm with disjunctive cuts for non-convex MINLP in Python Dec. 2014
- A review of the s-monotone index selection rules for pivot algorithms of linear programming Dec. 2014

AWARDS

- Best Poster Award of Mixed Integer Programming Workshop (Honorable mention), Clemson University and the Clemson Operations Research Institute Jun. 2018
- Rossin Doctoral Fellow, College of Engineering, Lehigh University Apr. 2017
- Van Hoesen Family Best Publication Award, Industrial and Systems Engineering, Lehigh University Apr. 2017
- Dean's Doctoral Assistantship, Industrial and Systems Engineering, Lehigh University Sept. 2014

- Direct entrance to graduate studies as a talented student by Dean of Sharif University of Technology with full scholarship Sept. 2011
 - 263rd in the Nationwide University Entrance Examination in Mathematics and Physics Field(among more than two million students) Sept. 2006
- REFEREED JOURNAL PUBLICATIONS
- **Tahernejad, S.**, Ralphs, T.K. and DeNegre, S.T., 2019. A branch-and-cut algorithm for mixed integer bilevel linear optimization problems and its implementation. Accepted for publication in Mathematical Programming Computation
- PAPERS IN PREPARATION
- **Tahernejad, S.**, Ralphs, T.K., Valid Inequalities for Mixed Integer Bilevel Optimization
- RELEVANT COURSE WORK
- Lehigh University**
Integer optimization, Mathematical optimization, Convex optimization, Nonlinear optimization, Computational methods in optimization, Conic optimization, Optimization methods in machine learning, Mining massive datasets, Stochastic models and applications, Dynamic Programming
- Sharif University of Technology**
Operations research I and II, Graph theory, Sequencing and scheduling theory, Discrete events simulation
- TALKS AND WORKSHOPS
- Two-stage mixed integer stochastic bilevel optimization problems, Informs Annual Meeting, Phoenix Nov. 2018
 - COIN fORgery: Developing open source tools for operations research workshop, Institute for Mathematics and Its Application Oct. 2018
 - Mixed integer programming workshop, Clemson University and the Clemson Operations Research Institute Jun. 2018
 - Valid inequalities for mixed integer bilevel linear optimization problems, COR@L seminar, Lehigh University Dec. 2017
 - A branch-and-cut algorithm for mixed integer bilevel linear optimization problems and its implementation, Informs Annual Meeting, Houston Oct. 2017
 - MibS solver for integer bilevel optimization problems, Informs Optimization Society Conference, Princeton University Mar. 2016
 - Branch-and-cut algorithm for integer bilevel linear optimization problems, Informs Annual Meeting, Philadelphia Nov. 2015
 - Summer school on Polyhedral Combinatorics, Carnegie Mellon University Jul. 2015
- ACADEMIC EXPERIENCE
- Teaching Assistant** Jan. 2016 to May 2016
- Simulation
Industrial and Systems Engineering Department
Lehigh University

Teaching Assistant Sept. 2015 to Dec. 2015
• Optimization models and applications
Industrial and Systems Engineering Department
Lehigh University

Teaching Assistant Jan. 2015 to May 2015
• Information systems analysis and design
Industrial and Systems Engineering Department
Lehigh University

Teaching Assistant Sept. 2014 to Dec. 2014
• Material handling and facility planning
Industrial and Systems Engineering Department
Lehigh University

LANGUAGES Persian (Native)
English (Fluent)
• Excellent in communication skills

REFERENCES Theodore K. Ralphs
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Department of Industrial and Systems Engineering E-mail: ted@lehigh.edu
Lehigh University
Katya Scheinberg
Professor E-mail: ks2375@cornell.edu
School of Operations Research and Information Engineering
Cornell University