Nikos Lappas

Chemical Engineering Ph.D. Candidate

5662 Hobart St.
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Education

Ph.D. in Chemical Engineering
Advisor: Chrysanthos E. Gounaris
Thesis: Robust Optimization for Scheduling Operations under Uncertainty
2013– August 2018 (expected)
Carnegie Mellon University
Chemical Engineering Department

Diploma in Chemical engineering
Advisor: Spyros N. Pandis
Thesis: A computational study on the impact of regional pollutants to the air quality over Greece
2007– 2012 (10 semesters)
University of Patras, Greece
Chemical Engineering Department

Experience

Researcher
2011– 2013
Laboratory of Air Quality, Forth ICE-HT
Simulation of atmospheric particulate matter over Europe using the 3-D chemical transport model PMCAMx.

Practical training
2010 (summer)
Heineken S.A., Patras Plant
Preliminary optimization and assessment of pilot facility for water reclamation from brewery effluent.

Journal Papers

"Adjustable Robust Optimization for Multi-tasking Scheduling with Reprocessing of Imperfect Tasks"
(N. Lappas; L.R. Sandoval; R. Fukasawa; C. Gounaris)
European Journal of Operational Research, 2018 (Under Review)

"A Theoretical and Computational Study of Continuous-Time Process Scheduling Models in the Context of Adjustable Robust Optimization"
(N. Lappas; C. Gounaris)
AIChE J., doi:10.1002/aic.16124, 2018

"Robust Optimization for Decision-making under Endogenous Uncertainty"
(N. Lappas; A. Subramanyam; C. Gounaris)
Comp. & Chem. Eng., doi:10.1016/j.compchemeng.2018.01.006, 2018

"Multi-Stage Adjustable Robust Optimization for Process Scheduling under Uncertainty"
(N. Lappas; C. Gounaris)
AIChE J., 62:1646-1667, 2016

Conference Proceedings

"The Use of Decision-dependent Uncertainty Sets in Robust Optimization"
(N. Lappas; C. Gounaris)
FOCAPO, January 2017, Tucson, Arizona.

"Comparison of Continuous-Time Models for Adjustable Robust Optimization in Process Scheduling under Uncertainty"
(N. Lappas; C. Gounaris)
26th European Symposium on Computer Aided Process Engineering, June 2016, Portoroz, Slovenia.

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Recent Conference Presentations

"Robust Optimization under Endogenous Uncertainty"
(N. Lappas; C. Gounaris)
INFORMS Annual Meeting, October 2017, Houston.

"The use of Decision-dependent Uncertainty Sets in Robust Optimization: Modeling Capabilities and Solution Approaches"
(N. Lappas; C. Gounaris)
INFORS Meeting, July 2017, Quebec City, Canada.

Key Technical Skills

Mathematical Programming with specialization in **Enterprise Wide Optimization**

Management of **Uncertainty in Supply Chain** and Production **Planning / Scheduling** operations

High efficiency algorithmic development in **C++, Python, Fortran** with additional experience in **High-Performance Computing** (OpenMP, MPI parallel programming)

Extensive experience with Mathematical Programming APIs (**IBM CPLEX, GUROBI, SCIP**)

Familiarity with **Machine Learning** concepts and widely available toolkits (**scikit, theano, tensorflow**)

Deep understanding of **Air Quality** related public policies (major pollutant sources identification and regulation, emission standards compliance)

Awards

AIChE Computing and Systems Technology Division, Best Student Presentation Award
"A Theoretical and Computational Study of Continuous-Time Process Scheduling Models in the Context of Adjustable Robust Optimization"
AIChE Annual Meeting, November 2016, San Francisco.

Editor's choice paper
"Multi-Stage Adjustable Robust Optimization for Process Scheduling under Uncertainty"
(N. Lappas; C. Gounaris)
AIChE J., May 2016.

Best Presentation Award
"Adjustable Robust Optimization for Scheduling Multipurpose Batch Plants under Uncertainty"
AIChE Annual Meeting, November 2015, Salt Lake City.

Andreas Mentzelopoulos Scholarship for Greek Students Abroad
September 2015.

Carnegie Mellon University, Dean's Fellowship
September 2013.

Languages

English (fluent), **Greek** (native), **German** (elementary proficiency)

Activities

Member of Student Council of Chemical Engineering Dept.
(2008-2012)