

# IAKOVOS TOUMAZIS

## Contact Info

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## CURRENT POSITION

### Postdoctoral Research Fellow

Plevritis' Lab current  
Department of Radiology  
Stanford University

## EDUCATION

**Doctor of Philosophy, PhD**, Industrial Engineering 09/2015

University at Buffalo, SUNY, Buffalo, NY

Dissertation Title: "Dynamic programming approaches to the palliative chemotherapy scheduling for metastatic colorectal cancer patients"

Co-Advisors: Drs. Murat Kurt and Changhyun Kwon

Committee Members: Drs. Rachael Hageman Blair and Mark Karwan

**Master of Science, MS**, Industrial Engineering 09/2012

University at Buffalo, SUNY, Buffalo, NY

Thesis Title: "Time-Dependent Conditional Value-at-Risk Minimization Algorithm for Hazardous Materials Routing"

**Bachelor of Science, BS**, Mathematics 02/2009

University of Patras, Greece

## RESEARCH INTERESTS

**Application:** health care; cancer treatment and screening; health economics; medical decision making; transportation systems

**Methodology:** Markov decision process; partially observable Markov decision process; stochastic optimization; linear and nonlinear programming; network optimization; robust optimization

## PUBLICATIONS

### Research Papers

1. **Toumazis, I.**, Kurt, M., Toumazi, A., Karacosta, L.G. and Kwon, C., "Comparative Effectiveness of Up-to-Three Lines of Chemotherapy Treatment Plans for Metastatic Colorectal Cancer", MDM Policy & Practice, 2017, In press
2. Han, S.S., Erdogan, S.A., **Toumazis, I.**, Leung, A., and Plevritis, S.K., "[Evaluating the Impact of Varied Compliance to Lung Cancer Screening Recommendations Using a Microsimulation Model](#)", Cancer Causes & Control, Online First

3. **Toumazis, I.**, and Kwon, C., “Worst-case conditional value-at-risk minimization for hazardous materials transportation”, Articles in Advanced, Transportation Science, 2015
4. **Toumazis, I.**, and Kwon, C., “Routing hazardous materials on time-dependent networks using conditional value-at-risk”, Transportation Research Part C: Emerging Technologies, 2013, 37, 73-92

### Book Chapters

1. **Toumazis, I.**, Kwon, C., and Batta, R. (2013), “Value-at-risk and conditional value-at-risk minimization for hazardous materials routing”, in Handbook of OR/MS Models in Hazardous Materials Transportation (Eds.:R. Batta and C. Kwon), Springer, NY

### Peer Reviewed Published Abstracts:

1. **Toumazis, I.**, Kurt, M., Karacosta, L.G., Toumazi, A., Kwon, C., Goldstein, D.A., “Assessing the role of sequencing up to three lines of chemotherapy in metastatic colorectal cancer treatment: A cost-effectiveness analysis”, 37th Annual Meeting of the Society of Medical Decision Making, St. Louis, MO
2. **Toumazis, I.**, Kurt, M., Karacosta, L.G., Toumazi, A., Kwon, C., Goldstein, D.A., “A dynamic programming approach to palliative chemotherapy scheduling for metastatic colorectal cancer patients”, 2015 MSOM Healthcare Special Interest Group Meeting, Toronto, ON
3. **Toumazis, I.**, Kurt, M., Ozaltin, O., Denton, B.T., and Shah, N.D., “Eliciting cholesterol management guidelines’ valuation of future life”, The 36th Annual Meeting of the Society for Medical Decision Making, Miami, FL

## TEACHING EXPERIENCE

### Instructor (with full teaching responsibilities)

Department of Industrial & Systems Engineering, University at Buffalo, SUNY, Buffalo, NY

- EAS 305: Applied Probability and Statistics Inference Summer 2015, Enrollment: 18
- IE 320: Engineering Economy Summer 2013, Enrollment: 28

### Guest Lecturer

Department of Industrial & Systems Engineering, University at Buffalo, SUNY, Buffalo, NY

- IE 525: OR Applications in Healthcare (1 week) Spring 2015
- IE 504: Facility Design (3 weeks) Spring 2014
- IE 572: Linear Programming (1 week) Fall 2013

### Teaching Assistant

Department of Industrial & Systems Engineering, University at Buffalo, SUNY, Buffalo, NY

- EAS 305: Applied Probability and Statistics Inference (Undergraduate level) Spring 2015
- IE 504: Facility Design (Graduate level) Spring 2014
- IE 572: Linear Programming (Graduate level) Fall 2013
- IE 514: Revenue Management (Graduate level) Spring 2013
- IE 507: Design of Experiments (Graduate level) Fall 2012

### Tutor of Mathematics

09/2009 - 08/2010

ELC Private Institute, Limassol, Cyprus

- Responsible for the Mathematics Department
- Taught all high school levels

## AWARDS/HONORS

- IIE Doctoral Colloquium 2015
- Society for Health Systems Graduate Student Paper Competition winner 2015
- University Transportation Research Center (UTRC) Travel Award 2012

## FUNDING

- **Toumazis, I.** (PI), Ruth L. Kirschstein National Research Service Award, National Institutes of Health/National Cancer Institute, “[Personalized, Dynamic Risk-based Lung Cancer Screening](#)”  
**Duration:** July 1, 2017 - June 31, 2019

**Amount:**\$113,760

**Description:** This project focuses on the problem of optimizing lung cancer screening for asymptomatic individuals at risk. The objective of this research is to develop stochastic, dynamic models incorporating past screening exams and the dynamic status of lung cancer risk factors to provide cost-effective, personalized, risk-based screening decisions. The anticipated findings of this proposal will improve the overall effectiveness of screening and enhance the shared decision making process between physicians and patients forming a basis for maximizing health benefit and reducing the harms associated with lung cancer screening.

## PROJECTS

### Graduate Assistant

Spring 2012

Processing Area Improvement Initiative, Goodwill Industries of WNY, Buffalo, NY

- Developed a forecasting system, production planning and staffing systems.
- Identified seasonality in the uncertainty of input resources and bottlenecks in the processing area.
- Improved processing area’s layout.

## SERVICE TO PROFESSION

- Session chair at IIE Annual Conference & Expo 2015, “OR applications in disease management”
- Ad-hoc Reviewer for Journals
  - European Journal of Operational Research (EJOR)
  - Annals of Mathematics & Artificial Intelligence
  - IIE Transactions on Healthcare Systems Engineering
  - Omega
  - Transportation Research Part D: Transport and Environment

## MEMBERSHIPS

- Institute for Operations Research and the Management Sciences (INFORMS)
- OmegaRho International Honor Society for Operations Research and Management Science
- Institute of Industrial Engineers (IIE)
- Society for Medical Decision Making (SMDM)
- Society for Health Systems (SHS)

## COMPUTING SKILLS

- Programming Languages: Java
- Operative Systems: Windows, Macintosh
- Other Software: CPLEX Optimizer ; Matlab ; R ; Julia ; Minitab ; MS Office ; ARENA ; LaTeX

## GRADUATE COURSE WORK

- **Department of Industrial & Systems Engineering:** Linear Programming, Discrete Optimization, Stochastic Dynamic Programming, Stochastic Methods, Applied Stochastic Processes, Multiple Criteria Decision Making, Network Optimization, Revenue Management, Design and Analysis of Experiments, Simulation and Stochastic Models, Transportation Analytics, Urban Operations Research
- **Department of Biostatistics:** Statistical Data Mining I
- **Department of Mechanical & Aerospace Engineering:** Optimization in Engineering Design