

# TAEWOO LEE

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## EMPLOYMENT

Assistant Professor 2017-  
Department of Industrial Engineering, University of Houston

Postdoctoral Fellow 2015-2016  
Department of Computational and Applied Mathematics, Rice University

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## EDUCATION

Ph.D., Operations Research 2015  
University of Toronto, Toronto, ON, Canada

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## RESEARCH

### Journal publications (\*authors ordered alphabetically)

1. \*T. C. Y. Chan, T. Lee, D. Terekhov, "Inverse Optimization: Closed-form Solutions, Geometry and Goodness of fit," *Management Science*, 65 (3), 1115-1135, 2019
2. \*T. C. Y. Chan, T. Lee, "Trade-off preservation in inverse multi-objective convex optimization," *European Journal of Operational Research*, 270 (1), 25-39, 2018
  - Finalist (winner TBA), INFORMS Multicriteria Decision Making (MCDM) Junior Faculty Best Paper Award
3. \*K. Ghobadi, T. Lee, H. Mahmoudzadeh, D. Terekhov "Robust inverse optimization," *Operations Research Letters*, 46 (3), 339-344, 2018
4. O. Tavaslioglu, T. Lee, S. Valeva, A. J. Schaefer, "On the structure of the inverse-feasible region of a linear program," *Operations Research Letters*, 46 (1), 147152, 2018
5. J. J. Boutilier, T. Lee, T. Craig, M. B. Sharpe, T. C. Y. Chan, "Models for predicting objective function weights in prostate cancer IMRT," *Medical Physics*, 42 (4), 15861595, 2015
6. \*T. C. Y. Chan, T. Craig, T. Lee, M. B. Sharpe, "Generalized inverse multi-objective optimization with application to cancer therapy," *Operations Research*, 62 (3), 680695, 2014
  - First prize, 2013 Canadian Operational Research Society (CORS) Paper Award
  - First prize, 2013 INFORMS Health Application Society Best Paper Award
7. T. Lee, M. Hammad, T. C. Y. Chan, T. Craig, M. B. Sharpe, "Predicting objective function weights from patient anatomy in prostate IMRT treatment planning," *Medical Physics*, 40 (12), 121706, 2013

### Conference publications

1. J. J. Boutilier, T. C. Y. Chan, T. Craig, T. Lee, M. B. Sharpe, “A logistic regression model to predict objective function weights in prostate cancer IMRT,” *Medical Physics*, 41 (6), 395, 2014
2. T. Lee, M. Hammad, T. C. Y. Chan, T. Craig, M. B. Sharpe, “Predicting objective function weights for IMRT prostate treatment planning using patient anatomy,” *Medical Physics*, 40 (6), 356, 2013
3. T. Lee, T. C. Y. Chan, T. Craig, M. B. Sharpe, “Determining critical objectives and importance factors for prostate IMRT treatment planning,” *Medical Physics*, 39 (6), 3845, 2012
4. T. C. Y. Chan, T. Lee, T. Craig, M. B. Sharpe, “Determining objective function weights in prostate IMRT using inverse optimization,” *Medical Physics*, 38 (6), 3687, 2011

### **Work in progress/under review (title tentative; draft available)**

- “Optimizing lung transplantation waitlist composition from the transplant programs perspective” (with D. Mildebrath and A. J. Schaefer; major revision for Operations Research)
- “Unified framework for model fitting and evaluation in inverse linear optimization” (with R. Mahmoud, T. C. Y. Chan, and D. Terekhov; under review after major revision for Operations Research)
- “Generalizing performance bounds for the greedy algorithm: Approximate submodularity and localization”
- “Quantile inverse optimization: Improving stability in inverse linear programming” (with Z. Shamoradi)

### **Selected conference presentations (by topics)**

Optimal timing and locations of teleretinal screening for diabetic eye disease

- INFORMS Annual Meeting, Seattle, WA, Scheduled for October 2019
- INFORMS Healthcare, Boston, MA, Scheduled for July 2019

Quantile inverse optimization to address data noise/inconsistency

- INFORMS Annual Meeting, Seattle, WA, Scheduled for October 2019
- INFORMS Healthcare, Boston, MA, Scheduled for July 2019
- INFORMS Annual Meeting, Phoenix, AZ, November 2018

Generalized inverse optimization with multiple observations

- INFORMS Annual Meeting, Houston, TX, October 2017
- INFORMS Annual Meeting, Nashville, TN, November 2016

Best objective selection in multi-objective optimization

- POMS Annual Conference, D.C., May 2019
- 4th International Conference on Big Data and Information Analytics, Houston, TX, December 2018
- INFORMS Annual Meeting, Phoenix, AZ, November 2018
- IISE Annual Meeting, Orlando, FL, May 2018
- INFORMS Annual Meeting, Houston, TX, October 2017
- INFORMS Computing Society Conference, Austin, TX, January 2017
- INFORMS Annual Meeting, Nashville, TN, November 2016

#### Robust inverse optimization

- INFORMS Annual Meeting, Houston, TX, October 2017
- INFORMS Annual Meeting, Nashville, TN, November 2016
- Canadian Operational Research Society (CORS) Annual Conference, Banff, AB, June 2016

#### Closed form solutions, geometric analysis, and goodness of fit in inverse optimization

- INFORMS Annual Meeting, Philadelphia, PA, November 2015
- 22nd International Symposium on Mathematical Programming (ISMP), Pittsburgh, PA, July 2015
- INFORMS Annual Meeting, Minneapolis, MN, Oct 2013

#### Preserving trade-off preferences in multi-objective optimization

- INFORMS Annual Meeting, Seattle, WA, Scheduled for October 2019
- INFORMS Annual Meeting, Phoenix, AZ, November 2018
- INFORMS Annual Meeting, Philadelphia, PA, November 2015
- CORS/INFORMS International Conference, Montreal, QC, June 2015
- INFORMS Annual Meeting, San Francisco, CA, Nov 2014
- CORS Annual Meeting, Ottawa, ON, May 2014

#### Machine learning techniques for predicting objective function weights in prostate cancer

- INFORMS Annual Meeting, San Francisco, CA, Nov 2014
- American Association of Physicists in Medicine (AAPM) 2014, Austin, TX, July 2014
- INFORMS 2013, Minneapolis, MN, Oct 2013

#### Predicting objective function weights for multi-criteria IMRT planning using patient anatomy

- INFORMS Annual Meeting, Minneapolis, MN, Oct 2013
- AAPM Annual Meeting, Indianapolis, IN, Aug 2013
- INFORMS Healthcare Conference, Chicago, IL, June 2013

#### Generalized inverse multi-objective optimization

- INFORMS Healthcare Conference, Chicago, IL, June 2013
- CORS Annual Conference, Vancouver, BC, May 2013
- INFORMS Annual Meeting, Phoenix, AZ, Oct 2012
- AAPM Annual Meeting, Charlotte, NC, July 2012
- CORS Annual Conference, Niagara Falls, ON, June 2012
- INFORMS Annual Meeting, Charlotte, NC, Nov 2011
- AAPM Annual Meeting, Vancouver, BC, July 2011
- INFORMS Healthcare Conference, Montreal, QC, June 2011
- INFORMS Annual Meeting, Austin, TX, Nov 2010

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## AWARDS and HONORS

Finalist for the INFORMS MCDM Junior Faculty Best Paper Award (winner TBA)	2019
Outstanding Teacher Award – Department of Industrial Engineering, University of Houston	2019
INFORMS New Faculty Colloquium	2017
IISE New Faculty Colloquium	2017
INFORMS Doctoral Colloquium	2014
First prize at the Canadian Operational Research Society (CORS) Paper Competition	2013
First prize at the INFORMS Healthcare Applications Society (HAS) Paper Competition	2013
The Queen Elizabeth II Graduate Scholarships in Science and Technology	2013
Natural Sciences and Engineering Research Council of Canada (NSERC) CREATE	2010–2013
Ontario Graduate Scholarship (OGS)	2012
MITACS Accelerate	2012
The Queen Elizabeth II Graduate Scholarships in Science and Technology	2011
Barbara and Frank Milligan Fellowship	2010

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## TEACHING

INDE3333: Engineering Economy	Spring 2017 (4.72/5.00; level avg 4.1; N=24) Spring 2018 (4.60/5.00; level avg 4.2; N=53)
INDE3382: Stochastic Models	Fall 2017 (4.80/5.00; level avg 4.0; N=26) Fall 2018 (4.80/5.00; level avg 4.0; N=21)
INDE7397: Decision Modeling under Uncertainty	Spring 2019 (5.00/5.00; level avg 4.6; N=8)
INDE7397: Simulation Modeling of Healthcare Systems	Spring 2019 (no evaluation taken)

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## SERVICE

### Journal Review

Annals of Operations Research  
Computers & Industrial Engineering  
European Journal of Operational Research  
IISE Transactions  
Management Science  
Medical Physics  
Operations Research  
Operations Research for Health Care  
Optimization and Engineering  
Optimization Letters  
Physics in Medicine and Biology  
Production and Operations Management

### Cluster/Session chair

Area Chair: OR in Health, Medicine and Life Science, IFORS 2020, Seoul, South Korea  
Inverse optimization in healthcare applications, INFORMS 2019, Seattle, WA  
Data and models in healthcare operations, INFORMS Healthcare 2019, Boston, MA  
Data-driven modeling in healthcare, INFORMS 2018, Phoenix, AZ  
Data-driven decision making in healthcare, INFORMS 2017, Houston, TX  
Healthcare logistics with uncertainty, 21st IFORS, Quebec City, QC  
Inverse optimization, 21st IFORS, Quebec City, QC

Optimization in radiation therapy, INFORMS Computing Society 2017, Austin, TX  
Inverse optimization: Theory, INFORMS 2016, Nashville, TN  
Inverse optimization: Applications, INFORMS 2016, Nashville, TN  
Optimization methods for cancer therapy, INFORMS International 2015, Montreal, QC  
Optimization methods for radiation therapy, INFORMS International 2015, Montreal, QC  
Inverse optimization in healthcare, INFORMS 2014, San Francisco, CA  
Optimization in radiation therapy treatment planning, CORS 2014, Ottawa, ON  
Optimization in radiation therapy treatment planning, INFORMS 2013, Minneapolis, MN

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