

# Velibor V. Mišić

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## Employment

**University of California Los Angeles**  
Anderson School of Management  
Decisions, Operations and Technology Management

Assistant Professor, June 2016 – present

## Education

**Massachusetts Institute of Technology**  
Operations Research Center

Ph.D. in Operations Research, September 2012 – June 2016

*Cumulative GPA:* 5.00 / 5.00

*Thesis title:* Data, Models and Decisions in Large-Scale Stochastic Optimization Problems

*Thesis advisor:* Professor Dimitris Bertsimas

**University of Toronto**  
Department of Mechanical and Industrial Engineering

M.A.Sc. in Industrial Engineering, September 2010 – April 2012

*Cumulative GPA:* A+ / A+

*Thesis title:* Adaptive and robust radiation therapy optimization for lung cancer

*Thesis advisor:* Professor Timothy C. Y. Chan

B.A.Sc. in Industrial Engineering, September 2005 – June 2010

*Cumulative GPA:* 3.99 / 4.00

*Class rank:* 2nd (Fall 2005), 1st (Spring 2006 – Spring 2010)

*Thesis title:* Computational enhancements to fluence map optimization for total marrow irradiation using IMRT

*Thesis advisor:* Professor Dionne M. Aleman

## Publications

### *Submitted articles*

1. **Mišić, V. V.** (2017) Optimization of tree ensembles. Submitted.

2. Bertsimas, D., Chang, A. A., **Mišić, V. V.** and Mundru, N. (2016) The airlift planning problem. Under second round review (minor revision) in *Transportation Science*.
3. Bertsimas, D. and **Mišić, V. V.** (2015) Data-driven assortment optimization. Under second round review in *Management Science*.

### *Refereed Journal Articles*

1. Bertsimas, D., Griffith, J. D., Gupta, V., Kochenderfer, M., and **Mišić, V. V.** (2017). A comparison of Monte Carlo tree search and rolling horizon optimization for large scale dynamic resource allocation. *European Journal of Operational Research*, 263 (2) 664-678.
2. Bertsimas, D. and **Mišić, V. V.** (2017) Robust product line design. *Operations Research*, 65 (1) 19-37.
3. Bertsimas, D. and **Mišić, V. V.** (2016) Decomposable Markov decision processes: a fluid optimization approach. *Operations Research*, 64 (6) 1537-1555.
4. **Mišić, V. V.** and Chan, T. C. Y. (2015) The perils of adapting to dose errors in radiation therapy. *PLoS ONE*, 10 (5), e0125335. DOI: 10.1371/journal.pone.0125335.

An earlier version of this work was titled “Dose-reactive methods in adaptive robust radiation therapy for lung cancer”.

5. Chan, T. C. Y. and **Mišić, V. V.** (2013) Adaptive and robust radiation therapy optimization for lung cancer. *European Journal of Operational Research*, 231 (3) 745-756.

**Honorable Mention, Canadian Operational Research Society (CORS) 2012 Student Paper Competition, Open Category**

6. Aleman, D. M., **Mišić, V. V.**, and Sharpe, M. B. (2013) Computational enhancements to fluence map optimization for total marrow irradiation using IMRT. *Computers & Operations Research*, 40 (9) 2167-2177.
7. **Mišić, V. V.**, Aleman, D. M., and Sharpe, M. B. (2010) Neighborhood search approaches to non-coplanar beam orientation optimization for total marrow irradiation using IMRT. *European Journal of Operational Research*, 205 (3) 522-527.

### *Articles in Preparation*

1. Bertsimas, D., Chang, A. A., **Mišić, V. V.** and Mundru, N. (2017) The robust airlift planning problem. Completed paper; to be submitted to *Transportation Science*.
2. Bertsimas, D., **Mišić, V. V.** and Silberholz, J. (2015) Model robustness. Completed paper; to be submitted to *Operations Research*.

### *Refereed Conference Proceedings*

1. **Mišić, V. V.** (2017) Optimization of tree ensembles. Extended abstract for 2017 MSOM Conference.
2. Bertsimas, D. and **Mišić, V. V.** (2015) Data-driven assortment optimization. Extended abstract for 2015 MSOM Conference, Toronto, Canada.
3. **Mišić, V. V.**, Aleman, D. M., and Sharpe, M. B. (2009) Total Marrow Irradiation Using Intensity Modulated Radiation Therapy Optimization. Proceedings of the IIE Annual Conference, IERC 2009, Miami, Florida.

## *Book Chapters*

1. Aleman, D. M., Ghaffari, H. R., **Mišić, V. V.**, Sharpe, M. B., Ruschin, M., and Jaffray, D. A. Chapter “Optimization methods in large-scale radiotherapy” in *Systems Analysis Tools for Better Health Care Delivery*. P. M. Pardalos, P. G. Georgiev, P. Papajorgji and B. Neugaard, editors. Springer, 2012.

## *Selected Course Projects*

1. **Mišić, V. V.** and Thraves, C. (2014) Growth and inequality in the presence of taxation and inequality aversion. Project for 15.795 (Behavioral Decision Theories and Applications; instructor: Y. Karen Zheng) at MIT.
2. **Mišić, V. V.** and Papush, A. (2013) Predicting hits on the Billboard Hot 100 Chart. Project for 15.071 (The Analytics Edge; instructors: Dimitris Bertsimas and Allison K. O’Hair) at MIT.

## **Presentations**

### *Invited Talks*

1. Optimization of tree ensembles. Presented at:
  - 2017 INFORMS Annual Conference, Houston, TX (scheduled, October 2017).
  - 2017 MSOM Conference, Chapel Hill, NC, June 19-21, 2017.
  - INSEAD, Decision Sciences and Technology and Operations Management Seminar, June 7, 2017.
  - 2017 Computational Management Science Conference, Bergamo, Italy, May 30 - June 2, 2017.
  - 2017 SoCal OR/OM Day, University of Southern California, May 19, 2017.
2. The Airlift Planning Problem. Presented at:
  - 2016 INFORMS Annual Conference, Nashville, TN.
3. Data, Models and Decisions in Large-Scale Stochastic Optimization Problems. Presented at:
  - University of California Los Angeles, Anderson School of Management, Decisions, Operations and Technology Management Group, February 2016.
  - University of Chicago, Booth School of Business, Operations Management Group, February 2016.
  - Carnegie Mellon University, Tepper School of Business, Operations Management Group, January 2016.
4. Data-driven assortment optimization. Presented at:
  - 2017 INFORMS Annual Conference, Houston, TX (scheduled).
  - 2017 POMS Conference, Seattle, WA.
  - University of Southern California, Marshall School of Business, Department of Data Sciences and Operations, February 2016.
  - University of Waterloo, Department of Management Sciences, January 2016.

- University of Toronto, Department of Mechanical and Industrial Engineering, January 2016.
- 2015 INFORMS Annual Conference, Philadelphia, PA.
- 2015 MSOM Conference, Toronto, Canada.
5. Decomposable Markov decision processes: a fluid optimization approach. Presented at:
    - 2015 ISMP Conference, Pittsburgh, PA.
    - 2014 INFORMS Annual Conference, San Francisco, CA.
  6. Robust product line design. Presented at:
    - 2017 POMS Conference, Seattle, WA.
    - 2014 Data-driven Optimization Workshop, Cornell University, Ithaca, NY.
  7. A Comparison of Robust Optimization and Monte Carlo Tree Search for Dynamic Resource Allocation. Presented at:
    - 2013 INFORMS Annual Conference, Minneapolis, MN.
  8. The aggregate deviation method for adaptive radiation therapy of lung cancer. Presented at:
    - 2012 CORS Annual Conference, Niagara Falls, ON, Canada.
  9. Adaptive and robust radiation therapy optimization for lung cancer. Presented at:
    - 2012 CORS Annual Conference, Niagara Falls, ON, Canada. (CORS Student Paper Competition)
    - 2011 INFORMS Annual Conference, Charlotte, NC.
    - 2011 INFORMS Healthcare Conference, Montreal, PQ, Canada. (Old title: "Dynamic robust optimization for fractionated IMRT treatment planning")
  10. Non-coplanar Beam Orientation Optimization for Total Marrow Irradiation using IMRT. Presented at:
    - 2009 CORS-INFORMS International Meeting, Toronto, ON, Canada.

### *Poster Presentations*

1. **Mišić, V. V.** and Chan, T. C. Y. (2011) Dynamic robust optimization for fractionated IMRT treatment planning. Presented at the 2011 Mechanical and Industrial Engineering (MIE) Annual Research Symposium, University of Toronto, Toronto, Canada. (**Won "Best Poster Award"**)
2. **Mišić, V. V.** and Chan, T. C. Y. (2011) Dynamic robust optimization for fractionated IMRT treatment planning. Presented at the 2011 "High-performance numerical methods supporting radiation therapy treatment planning" Workshop, Banff International Research Station (BIRS), Banff, Canada.

# Teaching

## *Instructor*

1. **Operations Analytics** (UCLA Anderson MS in Business Analytics Core Course), Spring 2018 (tentative)

Instructor for one section

2. **MGMT402 – Data and Decisions** (UCLA Anderson Full-time MBA Core Course), Fall 2017 (tentative)

Instructor for three sections

3. **MGMT402 – Data and Decisions** (UCLA Anderson FEMBA Core Course), Fall 2016

Instructor for two sections

**Overall ratings: 4.50, 4.61 / 5.00** (enrollment: 57, 65)

## *Teaching Assistantships*

1. **15.727 – The Analytics Edge** (MIT Sloan Executive MBA Elective), Spring 2015

Instructors: Professor Dimitris Bertsimas and Dr. Allison O’Hair

Assisted in designing and grading homework, leading recitations and advising student teams on course project.

**Overall rating: 6.75 / 7.0** (enrollment: 36)

2. **15.071 – The Analytics Edge** (MIT Sloan MBA Elective), Spring 2014

Instructors: Professor Dimitris Bertsimas and Dr. Allison O’Hair

Assisted in designing and grading homework, leading recitations and advising student teams on course project.

**Overall rating: 6.5 / 7.0** (enrollment: 85)

3. **15.071x – The Analytics Edge** (Massive Open Online Course (MOOC) offered through MITx, MIT’s online course platform), Spring 2014

Instructors: Professor Dimitris Bertsimas and Dr. Allison O’Hair

Together with a team of four other PhD students, assisted in creating course content (lecture slides, recitations and homework problems)

## *Other*

1. **15.053 – Optimization Methods in Management Science** (MIT Sloan Undergraduate Elective), Spring 2014

### **Guest Lecturer**

Instructor: Professor James B. Orlin

Delivered part of a lecture on optimization applications, on the topic of “Optimization in eHarmony”.

2. **15.S60 – Special Seminar in Management (SSIM): Software Tools for Operations Research**  
(IAP Course), January 2014

**Module Instructor**

Coordinators: Professor Dimitris Bertsimas, Iain Dunning and Vishal Gupta

Designed and delivered an introductory lecture on technical computing in the Julia programming language (<http://julialang.org>) and modeling optimization problems using JuMP (Julia for Mathematical Programming – <http://juliaopt.org>)

## Professional Experience

Simulation Consultant, Visual Thinking International Ltd., September 2008 to September 2009

Developed simulation-based planning and scheduling applications in SIMUL8 Planner

Conducted internal research into incorporating optimization solvers (such as the linear programming package GLPK) into SIMUL8 Planner applications

## Awards and Honors

Honorable Mention, CORS Student Paper Competition 2012, Open Category for the paper titled “Adaptive and robust radiation therapy optimization for lung cancer” (co-authored with T. C. Y. Chan)

NSERC Postgraduate Scholarship, Doctoral level (PGS-D) – September 2012 to August 2015

Value: CAD\$21,000 for three years

NSERC Canada Graduate Scholarship, Doctoral level (CGS-D) – *declined*

Value: CAD\$35,000 for three years

Declined to accept NSERC PGS-D abroad

Ontario Graduate Scholarship (OGS), Master’s level – 2011 to 2012

Value: CAD\$10,000

Best Poster Award, Mechanical and Industrial Engineering Research Symposium – 2011

Awarded to the three best posters presented at the MIE Research Symposium; 56 posters were presented

NSERC Canada Graduate Scholarship, Master’s level (CGS-M) – 2010 to 2011

Value: CAD\$17,500

Most prestigious Master’s level research scholarship offered by NSERC

Centennial Thesis Award (University of Toronto) – 2010

Awarded annually to one student in each engineering discipline for excellence in his/her final year undergraduate thesis

NSERC Undergraduate Student Research Award (USRA)– May 2008 to August 2008

Project title: Total body irradiation optimization using intensity modulated radiation therapy

Project supervisor: Professor Dionne M. Aleman

Wallberg Undergraduate Scholarship (University of Toronto) – 2006, 2008

Awarded on the basis of academic standing; only two are awarded to students who have completed third year, and only four are awarded to students who have completed first year

University of Toronto Scholar Award – 2005, 2007

University of Toronto Faculty of Applied Science and Engineering Entrance Scholarship – 2005

## Professional Activities

INFORMS, Member

MIT Operations Research Center Seminar Coordinator, Fall 2015

Involved with planning and scheduling the Center's seminar talks for the Fall 2015 semester

MIT Operations Research Center Informal Student Research Seminar, Organizer, January 2013 to December 2013

Involved with planning and scheduling student talks within the Center

University of Toronto Operations Research Group (UTORG, <http://org.mie.utoronto.ca>), Events Coordinator, May 2011 to April 2012

Involved with planning and scheduling student talks and other events of interest to students doing research in OR at the university

Ad-hoc reviewer for *Operations Research*, *Management Science*, *Networks*, *European Journal of Operational Research*, *Production and Operations Management*, *Mathematical Methods of Operations Research*, *INFORMS Journal on Computing*, *Journal of Aerospace Information Systems*, *AAAI-2016 Conference*

Judge for MSOM Student Paper Competition (2017)

## Extracurricular Activities

President, MIT Organization of Serbian Students (MOST), MIT, February 2015 to June 2016

Treasurer, MIT Organization of Serbian Students (MOST), MIT, September 2013 to February 2015

Treasurer, INFORMS Student Group, MIT, December 2012 to December 2013

Athletics Chair, Sidney Pacific Graduate Residence, MIT, January 2013 to May 2014

Speaker, Grad School Seminar, Engineering Chinese Club, University of Toronto, March 2012

Volunteer, The Operations Research Challenge (TORCH) 2012, University of Toronto, (<http://tidel.mie.utoronto.ca/torch2012/>), March 2012

Performer, Second Annual Chemical Engineering Club Talent Show (<http://chemclub.skule.ca/>), March 2011

Cast Member, Skule Nite oT9 (<http://skulenite.skule.ca/0t9/>), January 2009 to March 2009

Writer, The Cannon (<http://cannon.skule.ca>), January 2008 to March 2008

Dancer, Serbian Folk Dance Ensemble "Kolo" (<http://www.kolo-winnipeg.ca>), Winnipeg, MB, May 2007 to August 2007

Cast Member, Skule Nite oT7 (<http://skulenite.skule.ca/0t7/>), January 2007 to March 2007

Junior House Representative, Russell House, New College, September 2005 to May 2006

## Personal

Languages: English (fluent), Serbian (native), French (beginner)

Citizenship: Canadian, Serbian

Last updated: August 10, 2017