

# Dionne M. Aleman

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- PROFESSIONAL EMPLOYMENT ◇ **University of Toronto**, Toronto, Ontario, Canada  
Assistant professor in Mechanical and Industrial Engineering: (August 2007 – present).
- EDUCATION ◇ **University of Florida**, Gainesville, FL  
Ph.D. in Industrial and Systems Engineering, 2007.
  - Advisor: Dr. H. Edwin Romeijn
  - Thesis title: *Optimization Methods in Intensity Modulated Radiation Therapy Treatment Planning*Master of Science in Industrial and Systems Engineering, 2006.  
Magna Cum Laude Baccalaureate, Industrial and Systems Engineering, 2003.
- ◇ **Scholarships and Awards**
  - IERC Best Paper Award, Service Systems (2006)
  - National Science Foundation Graduate Research Fellowship (NSF GRF) recipient (2004 – 2007)
  - National Science Foundation Alliance for Graduate Education and the Professoriate (NSF AGEP) fellowship recipient (2003 – 2004)
  - National Hispanic Scholar (1999 – 2003)
  - Florida Bright Futures recipient (1999 – 2003)
  - National Council of Teachers of English (NCTE) essay finalist (1999)
  - Most Outstanding Woman in Journalism (1999), Junior in English (1998), Sophomore in Science (1997)
- RESEARCH INTERESTS ◇ Optimization in radiation therapy treatment planning, total body irradiation, medical applications of operations research; Global and nonlinear optimization methods.
- PUBLICATIONS ◇ D.M. Aleman, H.E. Romeijn, and J.F. Dempsey. A response surface approach to beam orientation optimization in intensity modulated radiation therapy treatment planning. *INFORMS Journal on Computing: Computational Biology and Medical Applications*, 20(3):115, 2008.
- ◇ D.M. Aleman, A. Kumar, R.K. Ahuja, H.E. Romeijn, and J.F. Dempsey. Neighborhood search approaches to beam orientation optimization in intensity modulated radiation therapy treatment planning. *accepted to Journal of Global Optimization, February 2008; published online March 2008.*
- ◇ C. Fox, H.E. Romeijn, B. Lynch, C. Men, D.M. Aleman, and J.F. Dempsey. Comparative analysis of  $^{60}\text{Co}$  intensity-modulated radiation therapy. *Physics in Medicine and Biology*, 53:3175–3188, 2008.
- ◇ D.M. Aleman, H.E. Romeijn, and J.F. Dempsey. Beam orientation optimization methods in intensity modulated radiation therapy treatment planning. IIE Conference Proceedings, 2006.

· **Winner: 2006 IERC Best Paper, Service Systems**

- ◇ D.M. Aleman, V. Mišić, and M. Sharpe. Non-coplanar extensions to neighborhood search methods for beam orientation optimization for total marrow irradiation using IMRT. *work in progress, targeted for Physics in Medicine and Biology.*
  - ◇ D.M. Aleman, C.H. Lee, T. Sivayogan, and M. Sharpe. A set cover approach to beam orientation optimization for total marrow irradiation using IMRT. *work in progress, targeted for INFORMS Journal on Computing.*
  - ◇ D.M. Aleman, H.E. Romeijn, and J.F. Dempsey. A novel formulation of the fractionation problem in intensity modulated radiation therapy treatment planning. *work in progress.*
  - ◇ D.M. Aleman, D. Glaser, H.E. Romeijn, and J.F. Dempsey. A primal-dual interior point algorithm for fluence map optimization in intensity modulated radiation therapy treatment planning. *work in progress.*
  - ◇ D.M. Aleman, T. Wibisono, and B. Schwartz. A non-homogeneous mixing model for predicting pandemic disease spread. *work in progress, targeted for Special Issue on Humanitarian Applications: Doing Good with Good OR (2009)*
- BOOK CHAPTERS
- ◇ D.M. Aleman, H.E. Romeijn, and J.F. Dempsey. “Beam orientation optimization”, in Optimization in Medicine and Biology. ed. Gino Lim. 2008.
- INFORMS Annual Meeting (October 2008) — Washington, DC
- Beam orientation optimization methods for total marrow irradiation treatment planning using IMRT optimization  
D.M. Aleman, V. Mišić, M. Sharpe
- CONFERENCE PRESENTATIONS
- ◇ CORS Annual Meeting (May 2008) — Quebec City, Quebec, Canada
    - Total body irradiation treatment planning using IMRT optimization  
D.M. Aleman, M. Sharpe
  - ◇ AAPM 49th Annual Meeting (July 2007) — Minneapolis, MN
    - Modeling the dose deposition of a beam in radiation therapy (poster)  
D.M. Aleman, I. Karakayalı, H.E. Romeijn, J.F. Dempsey
  - ◇ INFORMS International Annual Meeting (July 2007) — San Juan, Puerto Rico
    - Modeling the dose deposition of a beam in radiation therapy  
D.M. Aleman, I. Karakayalı, H.E. Romeijn, J.F. Dempsey
  - ◇ INFORMS Annual Meeting (November 2006) — Pittsburgh, Pennsylvania
    - Accounting for fractionation in fluence map optimization in IMRT  
D.M. Aleman, H.E. Romeijn, J.F. Dempsey
  - ◇ AAPM 48th Annual Meeting (July 2006) — Orlando, Florida
    - A novel neighborhood for local search and simulated annealing methods in beam orientation optimization in IMRT  
D.M. Aleman, H.E. Romeijn, J.F. Dempsey
    - A response surface-based approach to beam orientation optimization in IMRT (moderated poster presentation)  
D.M. Aleman, H.E. Romeijn, J.F. Dempsey
  - ◇ INFORMS International Annual Meeting (June 2006) — Hong Kong, China
    - Accounting for fractionation in fluence map optimization in IMRT  
D.M. Aleman, H.E. Romeijn, J.F. Dempsey
  - ◇ IIE Annual Conference (May 2006) — Orlando, Florida
    - Beam orientation optimization methods in intensity modulated radiation therapy  
D.M. Aleman, H.E. Romeijn, J.F. Dempsey

- ◇ INFORMS Healthcare Conference (February 2006) — San Antonio, Texas
  - Local search and simulated annealing methods in beam orientation optimization in IMRT  
D.M. Aleman, H.E. Romeijn, J.F. Dempsey
- ◇ INFORMS Annual Meeting (November 2005) — San Francisco, California
  - A response surface approach to integrated beam orientation and fluence map optimization for IMRT  
D.M. Aleman, H.E. Romeijn, J.F. Dempsey
- ◇ INFORMS Annual Meeting (October 2004) — Denver, Colorado
  - A response surface approach to beam orientation optimization for IMRT treatment planning  
D.M. Aleman, H.E. Romeijn, J.F. Dempsey
- ◇ AAPM 46th Annual Meeting (July 2004) — Pittsburgh, Pennsylvania
  - A response surface based approach for integrating beam orientation optimization with fluence map optimization in IMRT  
D.M. Aleman, H.E. Romeijn, J.F. Dempsey

INVITED  
SEMINARS

- ◇ University of Ottawa (November 2008) — Ottawa, ON, Canada
  - Optimization methods for total marrow irradiation using intensity modulated radiation therapy treatment planning  
D.M. Aleman, M. Sharpe
- ◇ University of British Columbia (November 2008) — Vancouver, BC, Canada
  - Optimization methods for total marrow irradiation using intensity modulated radiation therapy treatment planning  
D.M. Aleman, M. Sharpe
- ◇ University of Toronto, HAD 7001 (January 2008) — Toronto, ON, Canada
  - Optimization methods in intensity modulated radiation therapy treatment planning  
D.M. Aleman, H.E. Romeijn, J.F. Dempsey
- ◇ University of Virginia (March 2007) — Charlottesville, Virginia
  - Optimization methods in intensity modulated radiation therapy treatment planning  
D.M. Aleman, H.E. Romeijn, J.F. Dempsey
- ◇ Georgia Institute of Technology (February 2007) — Atlanta, Georgia
  - Optimization methods in intensity modulated radiation therapy treatment planning  
D.M. Aleman, H.E. Romeijn, J.F. Dempsey
- ◇ Virginia Polytechnic Institute and State University (February 2007) — Blacksburg, Virginia
  - Optimization methods in intensity modulated radiation therapy treatment planning  
D.M. Aleman, H.E. Romeijn, J.F. Dempsey
- ◇ University of Wisconsin-Milwaukee (February 2007) — Milwaukee, Wisconsin
  - Optimization methods in intensity modulated radiation therapy treatment planning  
D.M. Aleman, H.E. Romeijn, J.F. Dempsey
- ◇ University of Florida (April 2006) — Gainesville, Florida
  - A response surface based approach to beam orientation optimization in IMRT  
D.M. Aleman, H.E. Romeijn, J.F. Dempsey

RESEARCH  
EXPERIENCE

- ◇ Total body irradiation treatment planning using IMRT optimization (2007 – present)

- ◇ Optimization methods in intensity modulated radiation therapy treatment planning (2003 – 2007) Advisor: Dr. H. Edwin Romeijn.
- ◇ Applications of graph theory to the Internet (2003). Advisor: Dr. Panos M. Pardalos.

TEACHING  
EXPERIENCE

- ◇ **Instructor**
  - HAD 7001: Operations Research Tools for Quantitative Health Care Decision Making — University of Toronto, Toronto ON (2008 – present)
  - MIE 262: Operations Research I — University of Toronto, Toronto ON (2008 – present)
  - CGS 2425, CGS 2425L: Computer Programming for Engineers (C++), CGS 2425 Lab — University of Florida, Gainesville, Florida (2006 – 2007)
- ◇ **Colloquium participant** INFORMS Teaching Effectiveness Colloquium — Pittsburgh, Pennsylvania (November 2006)
  - Nominated to attend by Department of Industrial and Systems Engineering, University of Florida.
  - Attend sessions with topics including understanding how students learn, cognitive styles, exposure to a variety of teaching methods such as cases and games, and teaching/mentoring graduate students.
- ◇ **Teaching assistant** CGS 2425: Computer Programming for Engineers (C++, FORTRAN) — University of Florida, Gainesville, Florida (2001 – 2003)
  - Provide individual instruction for  $\approx$  140 students in (bi)weekly homework assignments and general course material; hold project and exam review sessions.
  - Grade homework projects and exams.

SERVICE

- ◇ Co-director, 3rd INFORMS Workshop on Data Mining and Health Informatics (2008)
- ◇ Treasurer, INFORMS Health Applications Section (2008)
- ◇ Co-advisor, National Society of Black Engineers, University of Toronto chapter (2007-2008)
- ◇ INFORMS Annual Conference (November 2007), Seattle, Washington: Session chair and organizer
- ◇ INFORMS International Annual Conference (July 2007), San Juan, Puerto Rico: Session chair and organizer
- ◇ INFORMS Annual Conference (November 2006), Pittsburgh, Pennsylvania: Session chair

WORK  
EXPERIENCE

- ◇ **Assistant systems administrator and webmaster**, Department of Industrial and Systems Engineering, University of Florida (2003 – present)
  - Develop departmental software applications.
  - Build, maintain and troubleshoot department computer and network systems.
  - Develop, implement and administrate new database-driven department website and online database applications.
  - Interview and hire assistant webmasters.
- ◇ **Textbook development collaborator** Department of Industrial and Systems Engineering, University of Florida (2003 – 2004)
  - “Programming in Visual Basic .NET for Engineers and Scientists”. S. Kirli, R.K. Ahuja, A.A. Pol.
  - Write and edit text, as well as provide coding examples and graphics.

- ◇ **Assistant webmaster** Warrington College of Business, University of Florida (2002 – 2003)
  - Maintain, update and create database-driven course and faculty websites.
  - Develop program logos.
- ◇ **Import and systems manager** Elka Handbags, Inc., Miami, FL (1996 – 2004)
  - Handle all import procedures and documentation; work with U.S. Customs and freight forwarders to schedule shipments based on inventory levels and projected product demand.
  - Maintain inventory database records.
  - Internal computer network maintenance and customization; development and administration of website.

COMPUTER SKILLS	- Adobe Photoshop, ImageReady	- Assembly Language
	- AutoDesk AutoCAD, Mechanical Desktop	- C++
	- ILOG CPLEX for C++ and Java	- Visual Basic, VB Script
	- Mathworks Matlab	- Java, Javascript
	- Macromedia Dreamweaver, Fireworks, Flash	- FORTRAN
	- Microsoft Office, Access, FrontPage, Windows	- ASP, PHP, SQL

MISCELLANEOUS Spanish; Alpha Pi Mu; Institute of Industrial Engineers; Society of Automotive Engineers (1999 – 2002); Tolbert Area Council Representative (1999 – 2000).