

# INDUSTRIAL AND SYSTEMS ENGINEERING

MID-YEAR UPDATE  
SPRING 2017

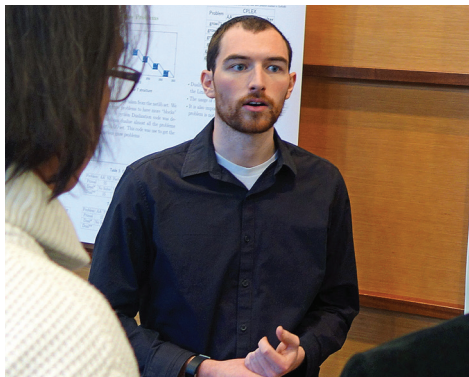
LEHIGH  
ISE'S

## First Undergraduate & Master's RESEARCH SYMPOSIUM

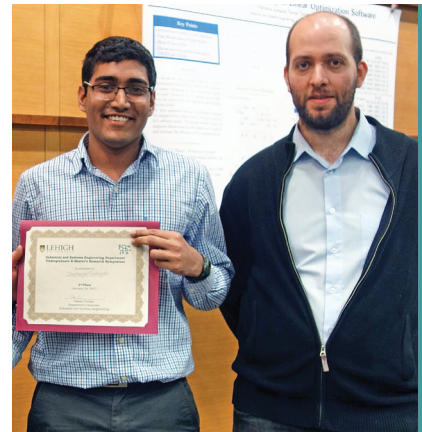
1ST  
PLACE |  
*Yutong  
Chang*



2ND PLACE | *Sean Byrne*



3RD  
PLACE |  
*Chaitanya  
Gudapati*





## CHAIR'S MESSAGE

### DEAR FRIENDS,

Greetings! I hope that you're having a great start to 2017! As we're fresh in the new year, I'd like to take the time to wish you much success in all your endeavors and also, to update you on our department.

It was a very busy Fall semester, as usual. We were invited to INFORMS 2016 in Nashville, TN due to our extraordinary job last year in Philadelphia. We provided INFORMS with 20 student volunteers who helped with various tasks during the conference.

We applied for the UPS George D. Smith Prize through our Healthcare Systems Engineering Program. We look forward to this year's results.

Interest in our data mining and analytics courses are growing immensely. We taught a new Introduction to Machine Learning course in the Fall and in Spring '17, opened up a second session of our Applied Data Mining course to fulfill the high demand. It seems the department's decision of moving towards the focus of analytics is paying off.

In April, we will have our annual Banquet, combined with two exceptional Spencer C. Schantz lectures. In May, in collaboration with the Lehigh Valley Business Coalition, we will host the next edition of our Healthcare Systems Engineering Symposium.

As always, your support means the world to us. Whether it's through volunteering, participating in alumni connections or through a monetary donation, every bit matters! Your support, suggestions and observations are monumental for making informed decisions about our department. Please feel free to send me your memories, opinions, ideas or anything else you may want to share to me directly at [Terlaky@lehigh.edu](mailto:Terlaky@lehigh.edu).

I look forward to seeing and hearing from you soon!



**TAMÁS TERLAKY**

[Terlaky@lehigh.edu](mailto:Terlaky@lehigh.edu)  
610-758-4050

## ISE Department Undergraduate & Master's Research Symposium

The ISE Department held its first annual Undergraduate & Master's Research Symposium on Thursday, January 26th. The competition, open to all ISE undergraduate and Master's students, highlighted the resources and opportunities ISE provides to undergraduate/Master's students. Each participating student presented one research project.

### THE FOLLOWING ARE THE WINNERS:

**1st place,** Yutong Chang

**2nd place,** Sean Byrne

**3rd place,** Chaitanya Gudapati

**Honorable Mentions:** Michael J. Pistoria, Weiming Lei, Chenghao Ma & Bolong Xiong.

\*Pictures on cover

## Frank E. Curtis, ISE Professor

### ISE DEPARTMENT MID-YEAR NEWSLETTER | SPRING 2017

#### DEPARTMENT CHAIR

Dr. Tamás Terlaky  
[terlaky@lehigh.edu](mailto:terlaky@lehigh.edu)

#### ASSOCIATE CHAIR

Dr. George Wilson  
[grw3@lehigh.edu](mailto:grw3@lehigh.edu)

#### EDITOR & COMMUNICATIONS SPECIALIST

Abby Barlok  
[aeb213@lehigh.edu](mailto:aeb213@lehigh.edu)

#### ISE DEPARTMENT STAFF

Ed Force  
Technician & Building Manager  
[ewf1@lehigh.edu](mailto:ewf1@lehigh.edu)

Rita Frey  
Graduate Coordinator  
[rrf0@lehigh.edu](mailto:rrf0@lehigh.edu)

Kathy Rambo  
Department Coordinator  
[kgr0@lehigh.edu](mailto:kgr0@lehigh.edu)

#### READER FEEDBACK

Please send comments to editor, Abby Barlok  
[aeb213@lehigh.edu](mailto:aeb213@lehigh.edu)



As Ph.D. Director, INFORMS Chapter Advisor, Ph.D. Selection Committee Chair and a Ph.D. Curriculum Committee Chair, ISE Professor, Frank E. Curtis, wears many hats. Some of his responsibilities under these positions are: advising Ph.D. students, overseeing the Ph.D. seminar series and activities of the INFORMS Chapter (social events, workshops and fundraising), helping to design the Ph.D. curriculum and reviewing applications for incoming Ph.D. students. Although hectic at times, Frank explains, "It all allows me to stay connected to the lives of the Ph.D. students and help in any way that I can."

During the 2017-2018 school year, Frank will take his sabbatical, spending the Fall at Columbia University with Professor Donald Goldfarb and Spring at NYU with Professor Michael Overton and Northwestern University with Professor Jorge Nocedal. Frank's research will focus on optimization, machine learning, and data science.

## ISE Department Visiting Research Fellows

### FENLAN WANG

Fenlan Wang, originally from Nanjing, China works at the Nanjing University of Aeronautics and Astronautics. She came to Lehigh University in December 2016 to work with ISE Chair, Tamás Terlaky, on a project called “developing novel optimization methodology and algorithm for Mixed Integer Second Order Cone Optimization and its applications in engineering design and portfolio optimization.” Fenlan explains, “We are focusing on further theoretical and high performance software development, as well as exploring applications of this novel emerging area of research.”

### MONICA COJOCARU

Monica Cojocaru is Associate Professor in the Mathematics & Statistics Department at the University of Guelph, Ontario, Canada. She completed her B.Sc. and M.Sc. in Mathematics at the University of Bucharest (Romania) and her Ph.D. in Mathematics at Queen's University in Kingston, Canada. Her research interests are in creating mathematical models of environmental choices in populations, in expanding and applying game theory to population health problems, and in investigating further links between nonsmooth and emergent dynamics and optimization, games and network problems.

While at Lehigh University, she aims to collaborate with ISE Chair, Tamás Terlaky, and his research group on investigations related to numerical approaches to computing solutions of generalized Nash games and their application to specific problems arising in population health.

## Terlaky Elected as Chair of the SIAM Activity Group on Optimization

ISE Department Chair, Tamás Terlaky, was recently elected as Chair of the SIAM Activity Group on Optimization. SIAM/OPT fosters the development of optimization theory, methods, and software -- and in particular the development and analysis of efficient and effective methods, as well as their implementation in high-quality software. It provides and encourages an environment for interaction among applied mathematicians, computer scientists, engineers, scientists, and others active in optimization. In addition to endorsing various optimization meetings, this activity group organizes the triennial SIAM Conference on Optimization, awards the SIAG/Optimization Prize, and sponsors minisymposia at the SIAM annual meeting and other SIAM conferences. Congratulations goes to our Chairman on this honor!

## UPS George D. Smith Prize

By **Ana Alexandrescu**, HSE Director

This year, Lehigh was once again represented in the UPS George D. Smith Prize competition, aiming to reward academic programs and departments that are making significant contributions to solving real, challenging problems using operations research and analytics. Lehigh's ISE department has been a finalist before, for four times, in the good company of such universities as the University of Michigan – Ann Arbor, MIT, Carnegie Mellon, and the Naval Postgraduate School. This year, the application was sent by the HSE program, represented by a team comprised of Bob Storer, Tamás Terlaky, Terry Theman, Luis Zuluaga and Ana Alexandrescu. We are excited to have entered the competition - the process to complete the application made us work as a team to answer questions about the mission and vision of the program, and how we measure the impact we have. Many of our collaborators endorsed our application through written testimonials and case studies and allowed themselves to be interviewed by the committee. We all came out with a stronger vision and sense of purpose for the work being done in HSE. We look forward to the outcome!



*Lehigh ISE students thoroughly enjoyed the last night of the conference*

## INFORMS 2016 Nashville, TN

Last year, the ISE Department made a huge presence at INFORMS 2015 in Philly with staff, faculty and thirty Ph.D. students attending and volunteering at the conference. The volunteers did such a great job that the Department was asked to bring twenty Ph.D. student volunteers back to attend and help at INFORMS 2016 in Nashville, TN!



*Tamás Terlaky inducted as Fellow of INFORMS*



*Ali Mobammad Nezbad competes in the INFORMS Poster Competition in Nashville, TN*



## Spring Spencer C. Schantz Public Lecture

Thursday, April 20, 2017

4:00 p.m.

Sinclair Auditorium

### SUNIL A. MISSE '88G

CHIEF EXECUTIVE OFFICER OF  
ACCOUNTABILITY

Sunil (Sunny) A. Misser is the Chief Executive Officer of AccountAbility. Previously, Mr. Misser served as Chairman of AccountAbility, and led its Advisory Services arm. Prior to joining AccountAbility, Mr. Misser was Global Managing Partner of the Sustainability Advisory Business at PricewaterhouseCoopers (PwC). Before that, he was Global Strategy Leader for PwC's Assurance and Business Advisory Services -- the firm's accounting, risk management, and consulting operation. He also served as the New York Metro leader for the Governance, Risk and Compliance practice. During his career, Mr. Misser has been a strategic business advisor to CEOs and senior executives at Fortune 500 companies and multi-lateral organizations (MLOs).

Previously, Mr. Misser worked in industry in operations and advanced manufacturing with Mars, Inc. and Honeywell. He holds an M.S. in Management from the MIT/Sloan School of Management with a concentration in International Business and Technology. He also has an M.S. in Industrial Engineering from Lehigh University and a B.S. in Mechanical Engineering from Maharaja Sayajirao University in India. Mr. Misser served on the advisory board of E-Business at MIT/Sloan and the advisory board for Innovation and Corporate Responsibility at MIT/Sloan. In addition, he has served as an advisor on the strategy and consulting track at the MIT Sloan School of Management. During his career at PwC, Mr. Misser led a team that published the book: Corporate Responsibility – Strategy, Management and Value. He is also a member of the Council on Foreign Relations and is often quoted in media such as Fortune, Financial Times, New York Times, New York Stock Exchange Quarterly, Forbes, Dow Jones Interactive, Global Finance and Internal Auditor's Magazine.

*\*Sunny has been a member of the ISE Advisory Council since 2011.*



## Spring Spencer C. Schantz Technical Talk

Tuesday, April 18, 2017

4:00 p.m.

Mohler Lab, Room 453

### DR. ALAIN HAURIE

PROFESSOR EMERITUS, UNIVERSITY OF GENEVA  
DIRECTOR/CO-FOUNDER OF ORDECSYS

Alain Haurie was a professor of Quantitative Methods at the Graduate Business School of the University of Montreal, Canada (1963-89). From 1989 to 2005 he was professor of Operations Research in the department of Management Studies (HEC) of the University of Geneva, Switzerland. During his academic career he occupied positions of department chairman (1974-1976 in Montreal, 1989-1992 in Geneva) and was the founder and first director of a research center dedicated to decision analysis (GERAD in Montreal 1980-1989), which became one of the leading research centers in Canada for Operations Research.

He has authored or co-authored around 200 scientific papers and co-authored 9 books. He has been in charge of orienting continuing education programs at the University of Geneva (1996-2001).

Alain Haurie has been a consultant in energy modeling for several firms and organizations in Canada, France, Switzerland and for OECD. Currently, as Director of ORDECSYS, he is involved in several applied research and consultancy projects dealing with the management of power utilities in the context of the European energy markets.

# events

### Spencer C. Schantz Technical Talk

Tuesday, April 18, 2017

4:00 p.m., Mohler Lab, Room 453

### Spencer C. Schantz Public Lecture

Thursday, April 20, 2017

4:00 p.m. Sinclair Auditorium

### Reunion Weekend

May 19-22, 2017

### ISE Department Cocktail Reception & Annual Banquet

Honoring the recipients  
of the 2017 Distinguished  
Alumni Awards

Thursday, April 20, 2017  
5:30 p.m. – 9:00 p.m.

*Invitations to follow*