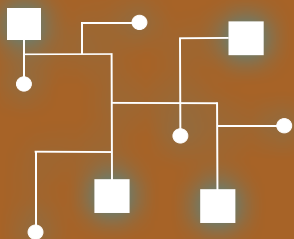


INDUSTRIAL AND SYSTEMS ENGINEERING

MID-YEAR UPDATE SPRING 2021



LEHIGH
UNIVERSITY

P.C. Rossin College
of Engineering and
Applied Science

CHAIR'S MESSAGE

Dear ISE Community,

The ISE Department happily welcomed returning students on February 1st. We look forward to making a memorable Spring 2021 Semester, as we have several exciting developments to share. Foremost, we are very pleased to announce that ISE Lehigh will host the 2022 International Conference on Continuous Optimization scheduled for July of 2022. ICCOPT is an international flagship conference of the Mathematical Optimization Society (MOPTA) that is held every three years. We will welcome Optimization experts from all over the globe to collaborate on the latest research, and enjoy Lehigh's beautiful campus and the historical city of Bethlehem. The 21st Annual MOPTA Conference hosted by ISE each year is scheduled for August 2-4, 2021. The 13th AIMMS-MOPTA Optimization Modeling Competition problem is Home Service Assignment, Routing, and Scheduling with Stochastic Service Time, Travel time, and Cancellation.

ISE Ph.D. students and faculty enjoyed an impressive ISE Fall 2020 Seminar Series hosted through Zoom. ISE will continue to host the 2021 Spring seminars through Zoom, and we look forward to another great lineup of speakers. Our 2020 Spencer C. Schantz Distinguished Lecture Series was postponed due to COVID-19. Plans for the 2021 Spencer C. Schantz Distinguished Lecture will be determined later in the semester.

The department is preparing three exciting new programs soon to be launched. These programs will increase engagement among our students and make a positive impact in their academic journey and career preparedness.

- ISE Lehigh Outreach Program (OutreachISE)
- ISE Lehigh Industrial Liaison Program (ISEi)
- ISE Lehigh Alumni Academy (ISE Academy)

Please keep in touch with us and visit the ISE website <https://ise.lehigh.edu> to stay up-to-date on all of the achievements from our outstanding students, faculty, and alumni. You can always drop us a note at ise@lehigh.edu.

With my warmest regards,



LUIS NUNES VICENTE

ISE Department Chair

Timothy J. Wilmott Endowed Chair Professor and Department Chair
Department of Industrial and Systems Engineering, Lehigh University
<http://www.lehigh.edu/lnv>

ISE DEPARTMENT MID-YEAR NEWSLETTER | SPRING 2021

ISE DEPARTMENT CHAIR
Luis Nunes Vicente
lnv@lehigh.edu

ASSOCIATE CHAIR
Derya Pamukcu
dp00@lehigh.edu

ISE DEPARTMENT STAFF

COMMUNICATIONS SPECIALIST
Sheila Dorney
skd220@lehigh.edu

DEPARTMENT & GRADUATE
COORDINATOR
Jennifer Vargas
jav319@lehigh.edu

HSE COORDINATOR
Linda Wismer
liw511@lehigh.edu

ISE NEWS



The International Conference
on Continuous Optimization
(ICCOPT) will be held at Lehigh
University in July of 2022

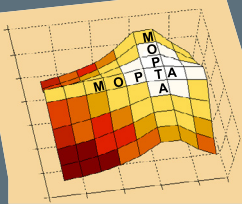
The Industrial and Systems Engineering Department is pleased to announce that the **Seventh International Conference on Continuous Optimization 2022 (ICCOPT 2022)** will be hosted on the beautiful campus of Lehigh University, Bethlehem, PA, USA, July of 2022. ICCOPT is the flagship conference of the Mathematical Optimization Society (MOPTA) organized every three years.

This is a huge opportunity for the ISE Department, RCEAS, and all of Lehigh. The conference will allow Lehigh University to share its beautiful campus with nearly 1000 optimization researchers and practitioners from around the globe; and also provide a forum to discuss the latest developments in the field of optimization. Guests will also enjoy exploring Bethlehem's rich history and contemporary culture where they can experience an array of diverse offerings in food, shopping, entertainment, and more.

The main conference will include a series of plenary and semi-plenary talks, organized and contributed sessions, and a main poster event. A Summer School on Continuous Optimization will be held the weekend prior to the conference.

The local organizing committee includes ISE faculty professors **Frank E. Curtis** (co-chair), **Daniel P. Robinson** (co-chair), **Boris Defourny**, **Aida Khajavirad**, **Ted Ralphs**, **Martin Takáč**, **Tamás Terlaky**, and **Luis F. Zuluaga**. All are experts in the field of optimization.

Lehigh's ISE Department will be a main sponsor of ICCOPT 2022. Department chair Luis Nunes Vicente, himself an expert in continuous optimization, says "As one of the strongest centers for mathematical optimization in the world, we are extremely proud to host ICCOPT 2022, and we will do our very best to make it a memorable event!"



The 21st annual Modeling and Optimization: Theory and Applications (MOPTA 2021) conference will be held at Lehigh University, August 2-4, 2021

The MOPTA conference brings together researchers from a broad range of optimization areas, working on theoretical or applied aspects, or both. There will be invited plenary talks from distinguished speakers, as well as organized sessions and contributed talks, spread over three days. Our confirmed plenary speakers are:

- Hamsa Balakrishnan (MIT)
- Amy M. Cohn (University of Michigan)
- Simge Küçükyavuz (Northwestern University)
- Jeffrey T. Linderoth (University of Wisconsin-Madison)
- Michael Mahoney (UC Berkeley)
- Catherine McGeoch (D-Wave Systems Inc.)
- Yurii Nesterov (University of Louvain)

Assistant Professor [Albert S. Berahas](#), University of Michigan, is the Chair of the Organizing Committee. ISE Lehigh Assistant Professor, [Karmel S. Shehadeh](#) is the AIMMS-MOPTA Competition Co-Chair together with Mohan Chiriki of AIMMS.

This year's Optimization Modeling Competition problem is **Home Service Assignment, Routing, and Scheduling with Stochastic Service Time, Travel time, and Cancellation**.

We are hoping that an in-person MOPTA will be possible. If an in-person conference is not possible, we will consider alternatives such as a fully virtual or a hybrid version of the conference. We plan to send updates as they become available.



The Industrial and Systems Engineering Department is thrilled to announce the opening of the 13th annual AIMMS-MOPTA Optimization Modeling Competition.

The competition is organized by the conference organizers of MOPTA and AIMMS. ISE Lehigh Assistant Professor, Karmel S. Shehadeh is the AIMMS-MOPTA Competition Co-Chair together with Mohan Chiriki of AIMMS.

This year's challenge:

The goal of the competition this year is to solve a Home Service Assignment, Routing, and Appointment Scheduling (H-SARA) problem under three key random factors: service duration, travel time, and customer cancellation.

The problem description is posted on the [competition webpage](#).

Finalists are expected to attend and present their results at the **2021 MOPTA Conference** to be held on **August 2-4, 2021, at Lehigh University, Bethlehem, PA, USA**. A \$600 cash prize will be awarded to the team that wins the overall competition.



ISE Professor Karmel S. Shehadeh is providing expertise in healthcare operations research

KARME S. SHEHADEH

A group of Lehigh researchers which includes ISE Assistant Professor, [Karmel S. Shehadeh](#) will examine the physical and mental health impacts of the COVID-19 pandemic on the Lehigh Valley community. The results of the study are expected to provide novel insights into the mechanisms by which potential predictors of health are related to the short-term positive and adverse impacts of the COVID-19 pandemic on the Lehigh Valley community as well as the longer-term impacts at the state and national levels.

The community study led by Professor Fathima Wakeel of Lehigh's new College of Health will focus on vulnerable populations (such as racial/ethnic minorities, the elderly, pregnant women, those with chronic physical and mental health conditions, those raising children with special needs, low-income families and essential service workers who support these vulnerable groups). The predictors of health include demographic characteristics, individual and family health status prior to the pandemic, pandemic-induced economic, social stressors and life events, and ability to follow social distancing guidelines.

Among the topics the team will explore are the nature, frequency, and methods of communication among individuals, peer groups, and community organizations in the Lehigh Valley. Researchers will also investigate the impact of such communication on perceptions of and behaviors related to the COVID-19 pandemic. They will examine the format and effectiveness of communication between health care providers and those in need of medical care as well.

ISE Assistant Professor [Karmel S. Shehadeh](#) will work with faculty experts from Lehigh's 5 colleges, and will provide experience in the application of Operations Research and Analytics in Healthcare Delivery. She aims to use advanced analytical methods (e.g., simulation, optimization, decision analysis) to analyze the data and build models that help understand the pandemic's physical and mental health impacts and design data-driven policies/strategies to mitigate and anticipate the adverse outcomes of this and future pandemics.



ISE Professor interviewed by Supply Chain Dive

LAWRENCE V. SNYDER

Industrial and Systems Engineering Professor and Director of Institute for Data, Intelligent Systems, and Computation (I-DISC) [Lawrence V. Snyder](#) was recently interviewed for an article in Supply Chain Dive, a leading industry publication providing insight on the most impactful news and trends shaping supply chain management.

This informative article outlines some of the struggles supply chain professionals experienced with AI technology during the pandemic, and concludes how incorporating AI into current methods of forecasting can help transform supply chain in the future. Larry, a subject matter expert in operations research and analytics shares his expertise on the meaning of AI in supply chain, its varying usage, and why humans are still needed to harness the great potential of this tool.

Read full article here: <https://www.supplychaindive.com/news/supply-chain-artificial-intelligence-AI-pandemic-Secondmind/586908/>



ISE Faculty honored at Mentorship Appreciation Celebration

In November 2020, the Graduate Student Senate hosted their fourth annual Mentorship Appreciation Celebration. This event invites graduate students to nominate faculty mentors who have positively impacted their academic career at Lehigh. The mentor/mentee relationship is a mutually rewarding experience and ISE is honored to have so many of our amazing faculty nominated. **Congratulations to our ISE faculty mentors below:**

Ana I. Alexandrescu, Professor of Practice and Director, Healthcare Systems Engineering (HSE) Program

Suresh Bolusani, Ph.D. Student Teaching Assistant

Frank E. Curtis, Associate Professor and Director of Graduate Studies

Derya Pamukcu, Associate Chair and Professor of Practice

Daniel P. Robinson, Associate Professor

Lawrence V. Snyder, Professor and Director, I-DISC

Tamás Terlaky, George N. and Soteria Kledaras '87 Endowed Chair Professor

Emory W. Zimmers, Professor and Director, Lehigh Enterprise Systems Center (ESC)

Luis F. Zuluaga, Associate Professor, Co-Director MS Financial Engineering

You can view all nominated mentors on the new Mentor Wall which includes their thoughts on mentoring as well as comments from the nominators. <https://wordpress.lehigh.edu/gradmentorshipappreciation2020/team-list/>



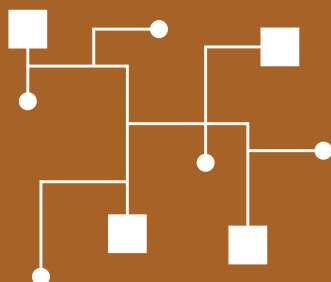
XIN SHI

Ph.D. Thesis Defense

Congratulations to Ph.D. candidate **Xin Shi** who successfully defended his Ph.D. Thesis, **Advanced Optimization Methods for Problems in Power Systems and Polynomial Optimization** on December 2, 2020. Xin's advisor was professor Luis F. Zuluaga. After graduation Xin will join Amobee, Inc. as an Operations Research Scientist.

ISE Remembers Faith Ruth Newhall, Former ISE Coordinator

Former ISE Coordinator, **Faith Ruth Newhall**, 88, of Bethlehem, PA passed away peacefully on Wednesday January 13, 2021 at Holy Family Manor. She was born in Bethlehem, the daughter of the late Carl and M. Ruth (Bailey) Boyer. Faith worked at Lehigh University in the Industrial Engineering Department for 26 years. Faith was hired as the IE Department secretary for the IE office by Art Gould in 1967. She was subsequently promoted to department coordinator as personal computers were introduced into office operations during the 1980s, and the need for pure secretarial support diminished. Faith became the visible face of the IE Department to students during her many years in the department, finally retiring at the end of 1993.



LEHIGH
UNIVERSITY

P.C. Rossin College
of Engineering and
Applied Science

Industrial and Systems Engineering Department
200 West Packer Avenue, Bethlehem, PA 18015
610-758-4050 | ise.lehigh.edu