



The One Hundred Forty-Ninth
C O M M E N C E M E N T

Graduate Ceremony
Five O'Clock • Thursday
The Eleventh of May
Two Thousand Seventeen
WPI Quadrangle

Worcester Polytechnic Institute

PROGRAM

Prelude	WPI Brass Ensemble Douglas G. Weeks, Conductor
Processional	Led by the Honorary Marshal <i>Full details on page 4</i>
Call to Order	Jack T. Mollen Chairman, WPI Board of Trustees
National Anthem	<i>The audience is invited to join in the singing</i>
Invocation	Rev. Cheryl Leshay Chaplain, WPI Collegiate Religious Center
Charge from the President	Laurie A. Leshin
Student Remarks	“Warping Time at the Crossroads of Past and Future” Rodica Neamtu '17 (PhD)
Conferring of Honorary Degrees	President Leshin
Commencement Address	Deborah Wince-Smith President and CEO, U.S. Council on Competitiveness
Presentation of Candidates for Degrees	Terri A. Camesano, Dean of Graduate Studies
Conferring of Degrees	President Leshin
Remarks from the Alumni Association	Rachel Delisle '96, '06 (MBA), President
Benediction	Rev. Leshay
Recessional	WPI Brass Ensemble

The audience is requested to remain standing until the end of the national anthem.

At the conclusion of the Commencement exercises, the audience is requested to remain standing until the academic procession has left the Quadrangle.

A FEW NOTES ABOUT TODAY'S CEREMONY

This year WPI is conferring undergraduate and graduate degrees at separate spring Commencement ceremonies. Master's and PhD degrees will be presented during this evening's exercises; bachelor's degree recipients will receive their diplomas on Saturday morning, May 13.

This graduate commencement is a reflection of the growing stature of the Institute's graduate programs, which have expanded substantially—in size, diversity, and international recognition—since WPI awarded its first master's degrees in 1898 and its first PhD in 1960. Today, nearly 800 graduate degrees will be conferred.

Serving as honorary marshal is **Neil T. Heffernan**, professor of computer science and director of WPI's Learning Sciences and Technologies Program, and winner of the 2017 Trustees' Award for Outstanding Research and Creative Scholarship. The baton he carries is the walking stick of WPI founder John Boynton. The ceremonial marshal is **Bruce E. Bursten**, provost.

President Leshin wears the Presidential Medallion, with the WPI seal cast in silver and the names and years of service of all 16 presidents engraved on small silver plates that form links in the chain. Provost Bursten carries the Academic Mace, a 42-inch staff made from fluted cherrywood and topped with a circular silver pedestal on which sits a large silver medal with the WPI seal on each side



As the processional begins, members of the faculty, attired in colorful robes and hoods, line both sides of Earle Bridge to pay tribute to the graduates as they cross the bridge before receiving their diplomas.

Student speaker **Rodica Neamtu** is receiving her PhD in computer science. As a data mining researcher, she investigates how to develop and leverage groundbreaking techniques to explore time series datasets at the confluence of theoretical computer science and application domains such as medicine, economics, and education. She has over 15 years of teaching experience in various academic institutions, including Emmanuel College, Wentworth Institute of Technology, and the University of Craiova in Romania (where she received her BS and MS in electrical engineering and computer science). After graduation, she will join WPI's computer science faculty as a teaching associate professor. She is committed to using her love and talent for teaching and research to empower others through education to make a difference in the world.

PROCESSIONAL AND RECESSIONAL—

Graduates begin lining up at 3:30 for the processional, which steps off at 4:30 (the ceremony itself starts at 5:00). Originating at Harrington Auditorium, the processional winds through the campus, crosses Earle Bridge, follows the sidewalk past Alden Memorial, moves onto the walkway behind Bartlett Center, turns at the Proud Goat statue, and proceeds up the center aisle under the tent.

At the conclusion of the ceremony, the marchers move down the center aisle and proceed as a group toward the Sports and Recreation Center. Guests are asked not to block the progress of the processional or recession. It is especially important to keep the center aisle clear so marchers may make their way to and from their seats.

Auxiliary Viewing Location: Olin Hall, Room 107

PHOTOS AND VIDEOS—

The pictures taken today will be treasured mementos. The following information should help our guests get the shots they want.

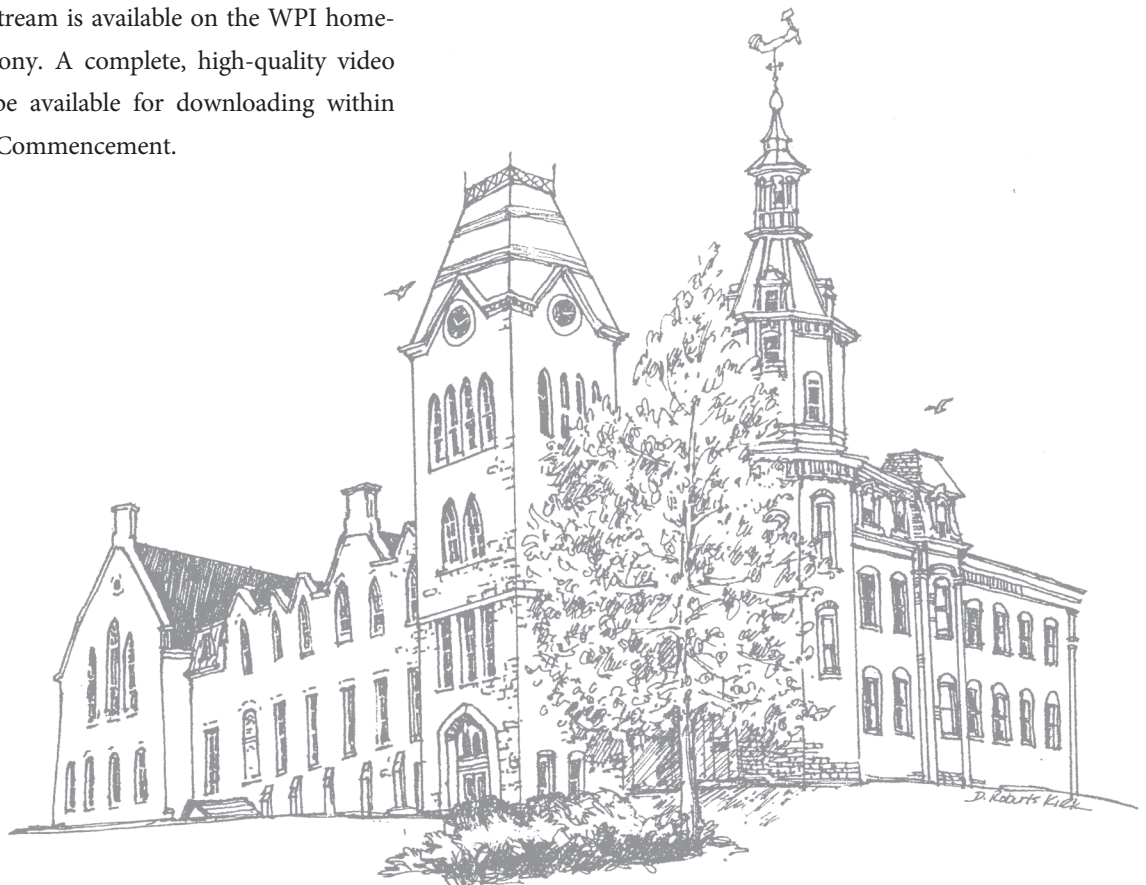
Photos during the ceremony: The area in front and to the side of the stage is reserved for official (badged) WPI photographers. Guests are not permitted in this area and may not stand in the aisles or around the stage area during any part of the ceremony (this will be strictly enforced). Professional photographers (Commencement Photographers Inc.) will take a photograph from an optimal location near the stage of every graduate receiving his or her diploma. The company will mail proofs with an order form to graduates or their families. For more information, you may call Commencement Photographers at 978-851-5924.

WPI records the entire ceremony from several vantage points. A live stream is available on the WPI homepage during the ceremony. A complete, high-quality video of the ceremony will be available for downloading within two weeks at wpi.edu/+Commencement.

Photos after the ceremony: If you'd like to capture your happy graduate following the ceremony, we recommend the following locations:

- **The Stage Area:** After the procession has left the Quadrangle, guests are invited to take photos on or near the stage (with WPI banner and plantings in background).
- **Earle Bridge:** Spanning West Street, the footbridge is decorated with flowering plants.
- **Boynton Hall:** WPI's first building, with its granite exterior and clock tower, is located just across the footbridge.
- **Higgins House:** This WPI mansion, located directly behind the Rubin Campus Center, is surrounded by plantings and formal gardens that are in full bloom at this time of year.

Photos with Faculty: Graduates may have photos taken with faculty in Harrington Auditorium after the ceremony.



BOYNTON HALL AND WASHBURN SHOPS

Completed in 1868, WPI's first building is named for John Boynton, a prosperous tinware manufacturer who founded the Institute in 1865 with a gift of \$100,000. Boynton Hall was one of the first buildings designed by noted architect Stephen Earle and was constructed of granite obtained from local quarries. The building originally housed classrooms and labs, where students learned the theory of science and engineering; they applied that theory next door in the Washburn Shops. The towers of these two buildings now symbolize WPI's unique philosophy of education, the merger of theory and practice.

HONORARY DEGREE RECIPIENT

AUDREY CARLAN '57

DOCTOR OF SCIENCE

Audrey Carlan is truly the first lady of WPI. A pioneering computer scientist and mathematician, Carlan made history in 1957 when she became WPI's first female graduate, earning a master's degree in physics (the first advanced degree the Institute awarded in that discipline). For her thesis, she conducted what is considered WPI's first computer science project, using an IBM 650 console that was bigger than a refrigerator to investigate the electromagnetic scattering properties of spheroids. When she and her husband, Alan Carlan, graduated from WPI together, they became the Institute's first alumni couple and were dubbed the "Precedent Shattering Pair" by the *Worcester Evening Gazette*. And just a month after Commencement, she gave birth to their first son, who, she proudly notes, "became the first child with a WPI alumna for a mom."

A trailblazer long before she arrived at WPI, Carlan grew up in Brooklyn, New York. The lone girl in her junior high school math class, she swiftly proved her mettle by winning the class algebra award. She went on to Brooklyn College, where she earned a bachelor's degree in mathematics. It was there, in an analytical geometry class, that she met Alan Carlan. Married in 1952, they embarked on a love story that spanned more than five and a half decades until his passing in 2007.

After graduation, both Carlans went to work for American Optical in Southbridge, Mass., where she was a mathematical physicist working with the optical computing system. As part of her job, she programmed a high-speed electronic calculator that crunched the numbers to solve complex mathematical problems in optics. Her work contributed to advances in aspheric and multifocal lenses for continuous vision. The couple also helped with the development of Todd-AO, the groundbreaking film projection system first used for movies such as *Oklahoma!* and *Around the World in 80 Days*. Looking back, Audrey credits one of her AO mentors, Harold Osterberg, for inspiring her to excel in her career. "He told me, 'Turn light on and off at the

frequency of life,'" she told a WPI interviewer in 2001. "I was thrilled by those words."

While working at American Optical, the Carlans decided to pursue advanced study in mathematics and physics, joining colleagues who were taking on-site courses then being offered through WPI. After the program shifted to the WPI campus, they stuck with it and became the only AO employees to complete their graduate degrees. She recalls those years fondly,

even if the campus didn't seem quite prepared for her, as she told the *WPI Journal* in 1994. "When we first started taking evening classes, I asked where the bathroom for women was. It wasn't! I really don't believe WPI knew I was a woman until we came to campus. We used to joke that WPI thought I was 'Aubrey,' not 'Audrey.'"

Following a cross-country move to Rancho Palos Verdes, California, where she has lived ever since, Carlan enjoyed a successful career as a professor of math and computer science. Today she is professor emeritus of mathematics at Los Angeles

Community College. She is also the author of several books that seek to demystify math and science, including *Everyday Mathematics for the Numerically Challenged*. As one reviewer wrote, Carlan "brings math alive ... and makes us aware that mathematics is all around us."

An adventurous spirit, she is also a sailor, certified navigator, world traveler, bridge player, former competitive square dancer, and devoted grandmother. She continues to pursue a range of computer projects and activities. A loyal alumna, she keeps a close eye on the university she helped shape. "I enjoy keeping informed about happenings at WPI," she wrote in a recent class note. "I am so proud that there is now a very talented woman president."

For her outstanding professional achievements, her inspiring example to future WPI generations, and her trailblazing role in the history of the university, WPI is proud to confer on Audrey Carlan the degree of Doctor of Science, *Honoris Causa*.



HONORARY DEGREE RECIPIENT

DEBORAH L. WINCE-SMITH

DOCTOR OF HUMANE LETTERS

Like President Theodore Roosevelt, Deborah Wince-Smith holds no place “with those poor spirits...who live in the gray twilight that knows not victory nor defeat.” One of world’s leading voices on competitiveness, she has long advocated for the men and women who are actually in the arena, who strive to do the deeds, and who spend themselves in a worthy cause. As president and CEO of the Council on Competitiveness—a dynamic coalition of corporate, university, and labor leaders—she champions the human spirit while advancing America’s competitive position in the global marketplace and enhancing prosperity for all Americans.

During a career that has embraced both public service and private enterprise, Wince-Smith has served under three U.S. presidents, holding leadership positions in the areas of science and technology policy, international economic affairs, and competitiveness strategy. Most notably, she served as the nation’s first assistant secretary of commerce for technology policy in the administration of George H. W. Bush. In that capacity, she oversaw federal technology transfer policy, implementation of the Bayh-Dole Patent and Trademark Act, and the White House National Technology Initiative. In the Reagan Administration she served as the first assistant director of international affairs and competitiveness in the White House Office of Science and Technology Policy. In that role she developed and negotiated the 1988 Presidential U.S.-Japan Science and Technology Agreement, President Reagan’s landmark executive orders on federal technology commercialization, the establishment of national science and technology centers, and new public-private partnerships. In 2006 President George W. Bush appointed her to serve as a member of the Oversight Board of the Internal Revenue Service. She began her career as a program manager at the National Science Foundation, where she managed scientific exchange programs between U.S. universities and counterparts in former Eastern Bloc countries, an international exchange program that constituted a major component of U.S. foreign policy during the Cold War.

Following her government tenure, she became active in governance of various national scientific laboratories and provided strategic counsel to several Fortune 100 companies.

Generous with her time and expertise, she has served on a wide variety of corporate and nonprofit boards, including NASDAQ-QMX, the Smithsonian National Board, the Board of Governors of Argonne National Laboratory, and the Secretary of State’s Advisory Committee on International Economic Policy. She currently serves on the U.S. Naval Academy Foundation board; the Science, Technology, and Society Forum; the Prime Minister of Malaysia’s Global Science and Innovation Advisory Committee; and the board of Nanomech.



As president of the Council on Competitiveness, she spearheaded the groundbreaking National Innovation Initiative that helped shape the bipartisan American COMPETES Act. Since 2009 she has served as president of the Global Federation of Competitiveness Councils, the first global network devoted exclusively to the exchange of knowledge and practice related to competitiveness policies and strategies. A sought-after speaker, she is frequently called upon to testify before Congress and appears regularly on global television news networks, including Bloomberg, BBC, CNBC, CNN, and

Fox News.

A native of Akron, Ohio, Wince-Smith was named valedictorian of her high school class before going on to Vassar College, where she graduated Phi Beta Kappa and magna cum laude with a bachelor of arts degree. She was one of the first female students to enter King’s College at the University of Cambridge, where she read for a master’s degree in classical archeology. She has been recognized with honorary doctorates from several universities, including Michigan State, the University of Toledo, and the Queens University of Belfast.

With her own life as an inspiring model, Wince-Smith encourages today’s young people to dare greatly. “Taking risks is very important,” she has said. “Be willing to go out of your comfort zone ... just go out there and start doing things. If you stumble and fail, you learn, adapt, and grow, so you are ready to seize the next opportunity.”

For serving her nation with distinction, daring greatly, and making it possible for individuals and institutions to do the same, Worcester Polytechnic Institute is honored to confer on Deborah Wince-Smith the degree of Doctor of Humane Letters, *Honoris Causa*.

DEGREE OF
DOCTOR OF PHILOSOPHY
ARTS AND SCIENCES

Melissa Walsh Mobley

BA, BS, University of Rhode Island

BIOLOGY AND BIOTECHNOLOGY—

“Examining the Potential Threat of Pesticide and Pathogen Exposure on Wild Bumble Bees: Proposed Lethal and Sublethal Mechanisms Contributing to Pollinator Decline”

Advisor: Robert Gegear

Awarded: February 24, 2017

Rodica Neamtu

MS, University of Craiova, Romania

COMPUTER SCIENCE—

“Interactive Exploration of Time Series Powered by Time Warped Distances”

Advisors: Gabor Sarkozy and Elke Rundensteiner

Mahni Shayganfar

BS, MS, Azad University, Iran

COMPUTER SCIENCE—

“Affective Motivational Collaboration Theory”

Advisor: Charles Rich

Awarded: February 24, 2017

Curtis Robin Taylor

BS, University of Tennessee;

MS, Worcester Polytechnic Institute

COMPUTER SCIENCE—

“Software-defined Networking: Improving Security for Enterprise and Home Networks”

Advisor: Craig Shue

Hao Wan

BS, Huazhong University of Science and Technology, China;

MS, Beihang University, China

COMPUTER SCIENCE—

“Tutoring Students with Adaptive Strategies”

Advisor: Joseph Beck

Awarded: February 24, 2017

Dongqing Xiao

MS, Harbin Institute of Technology, China

COMPUTER SCIENCE—

“Towards Graph Analytic and Privacy Protection”

Advisor: Mohamed Eltabakh

Xiaolu Xiong

BS, Beijing University of Chemical Technology, China;

MA, Brandeis University

COMPUTER SCIENCE—

“Theory and Practice: Improving Retention Performance through Student Modeling and System Building”

Advisor: Joseph Beck

Yiqing Li

MS, Worcester Polytechnic Institute

MATHEMATICAL SCIENCES—

“Quasi-static Fracture Evolution with Cohesive Energy”

Advisor: Christopher Larsen

Awarded: October 7, 2016

Binod Manandhar

MS, University of North Florida;

MS, Utah State University

MATHEMATICAL SCIENCES—

“Bayesian Models for the Analyses of Noisy Responses from Small Areas: An Application to Poverty Estimation”

Advisor: Balgobin Nandram

William Charles Sanguinet

BS, MS, Worcester Polytechnic Institute

MATHEMATICAL SCIENCES—

“Various Extensions in the Theory of Dynamic Materials with a Specific Focus on the Checkerboard Geometry”

Advisor: Konstantin Lurie

Liang Wang

BS, MS, Beijing Normal University, China

MATHEMATICAL SCIENCES—

“In Vivo IVUS-based 3D Fluid-structure Interaction Models for Human Coronary Atherosclerotic Plaque Vulnerability Assessment and Progression Prediction”

Advisor: Dalin Tang

Heng Zuo

BS, MS, Beijing Normal University, China

MATHEMATICAL SCIENCES—

“3D Multi-Physics MRI-Based Human Right Ventricle Models for Patients with Repaired Tetralogy of Fallot: Cardiac Mechanical Analysis and Surgical Outcome Prediction”

Advisor: Dalin Tang

Goker Arpag
BS, Istanbul Technical University, Turkey
 PHYSICS—
 “Theoretical and Computational Investigations into
 Cooperative Cellular Transport by Motor Proteins”
Advisor: Erkan Tuzel
 Awarded: October 7, 2016

Saeed Pourmasoumi Langarudi
BS, Azad University of Najafabad, Iran;
MS, Isfahan University of Technology, Iran
 INTERDISCIPLINARY IN SYSTEM DYNAMICS AND ECONOMICS—
 “A System Dynamics Approach to the Political Economy
 of Resource-dependent Nations”
Advisor: Michael Radzicki
 Awarded: February 24, 2017

Raafat Mahmoud Zaini
BS, King Fahd University of Petroleum and Minerals,
Saudi Arabia;
MS, Purdue University
 INTERDISCIPLINARY IN SYSTEM DYNAMICS AND
 ORGANIZATIONAL BEHAVIOR—
 “Modeling Manifest and Latent Structures in a University:
 Understanding Resources and Dissent Dynamics”
Advisor: Khalid Saeed
 Awarded: February 24, 2017

ENGINEERING

Jason Matthew Forte
BS, ME, Worcester Polytechnic Institute
 BIOMEDICAL ENGINEERING—
 “Development of a Biomimetic In Vitro Skeletal
 Muscle Tissue Model”
Advisor: Raymond Page

Fan Zhang
BS, MS, Jilin University, China
 BIOMEDICAL ENGINEERING—
 “Statistical Methods for Characterizing Genomic
 Heterogeneity in Mixed Samples”
Advisor: Patrick Flaherty
 Awarded: February 24, 2017

Nicholas D. Deveau
BS, University of New Hampshire;
MS, Worcester Polytechnic Institute
 CHEMICAL ENGINEERING—
 “Microkinetics of Hydrogen Permeation through
 Dense Solid and Liquid Metal Membranes”
Advisor: Ravindra Datta
 Awarded: February 24, 2017

Drew Joseph Martino
BS, Rensselaer Polytechnic Institute
 CHEMICAL ENGINEERING—
 “Evaluation of Electrochemical Storage Systems for
 Higher Efficiency and Energy Density”
Advisor: Ravindra Datta
 Awarded: February 24, 2017

Jason Michael Morgan
BS, MS, University of New Hampshire
 CHEMICAL ENGINEERING—
 “Towards an Understanding of the Gas Diffusion
 Layer in Polymer Electrolyte Membrane Fuel Cells”
Advisor: Ravindra Datta
 Awarded: February 24, 2017

Patrick Daniel O’Malley
BS, Worcester Polytechnic Institute
 CHEMICAL ENGINEERING—
 “Development and Application of Reaction Route
 Graph Representation and Analysis of Catalytic
 Reaction Networks”
Advisor: Ravindra Datta
 Awarded: February 24, 2017

Jake Edmond Hughes
BE, The Cooper Union
 CIVIL ENGINEERING—
 “A Novel 2-Step Control Approach for Damage
 Mitigation After Bridge Collision Events”
Advisor: Leonard Albano

Hajar Jafferji
BS, MS, Worcester Polytechnic Institute
 CIVIL ENGINEERING—
 “Incorporating Cinnamaldehyde into Concrete for
 Corrosion Mitigation”
Advisor: Aaron Sakulich
 Awarded: February 24, 2017

Naser Pourakbar Sharifi

*BS, Isfahan University of Technology, Iran;
MS, Sharif University of Technology, Iran*

CIVIL ENGINEERING—

“Application of Phase Change Materials to Improve the Thermal Performance of Buildings and Pavements”

Advisor: Aaron Sakulich

Awarded: February 24, 2017

Xiaokong Yu

BS, MS, Northwest A&F University, China

CIVIL ENGINEERING—

“Understanding of Chemical-Microstructural-Mechanical Relationships of Asphalt Binders”

Advisor: Mingjiang Tao

Ain-ul-Aisha

MS, National University of Sciences and Technology, Pakistan

ELECTRICAL AND COMPUTER ENGINEERING—

“Fundamental Limits of Poisson Channels in Visible Light Communications”

Advisor: Lifeng Lai

Bengi Aygun

BS, Yildiz Technical University, Turkey;

ME, Bahcesehir University, Turkey

ELECTRICAL AND COMPUTER ENGINEERING—

“Distributed Adaptation Techniques for Connected Vehicles”

Advisor: Alexander Wyglinski

Awarded: October 7, 2016

Travis Fredrick Collins

BS, MS, Worcester Polytechnic Institute

ELECTRICAL AND COMPUTER ENGINEERING—

“Enabling 5G Technologies”

Advisor: Alexander Wyglinski

Awarded: February 24, 2017

Chenyun Dai

BS, Nanjing University of Aeronautics and Astronautics, China;

MS, Worcester Polytechnic Institute

ELECTRICAL AND COMPUTER ENGINEERING—

“Studies of the Relationship Between the Surface Electromyogram, Joint Torque and Impedance”

Advisor: Edward Clancy

Awarded: February 24, 2017

Paulo Victor Rodrigues Ferreira

BS, MS, Universidade Federal de Uberlandia, Brazil

ELECTRICAL AND COMPUTER ENGINEERING—

“SRML: Space Radio Machine Learning”

Advisor: Alexander Wyglinski

Yishuang Geng

BS, Southeast University, China;

MS, Worcester Polytechnic Institute

ELECTRICAL AND COMPUTER ENGINEERING—

“Radio Propagation for Localization and Motion Tracking in Three Body Area Network Applications”

Advisor: Kaveh Pahlavan

Awarded: February 24, 2017

Gorka Irazoqui

MS, Tecnun Universidad de Navarra, Spain

ELECTRICAL AND COMPUTER ENGINEERING—

“Cross-core Microarchitectural Attacks and Countermeasures”

Advisor: Thomas Eisenbarth

Lili Yuan

BS, Beijing Institute of Technology, China

ELECTRICAL AND COMPUTER ENGINEERING—

“Feasibility Investigation of Real-time Quantitative Quasi-static Ultrasound Elastography”

Advisor: Peder Pedersen

Khalid M. Alzahrani

BS, KFUPM, Saudi Arabia;

MS, MBA, Worcester Polytechnic Institute

MANUFACTURING ENGINEERING—

“Perspectives on Hybrid Electric Vehicles in the Kingdom Of Saudi Arabia”

Advisor: Amy Zeng

Awarded: October 7, 2016

Inigo Anza

MS, University of the Basque Country, Spain

MATERIALS SCIENCE AND ENGINEERING—

“Synthesis of Aluminum-Titanium Carbide Composites by the Rotating Impeller Gas-Liquid In-situ Method”

Advisor: Makhoul Makhoul

Awarded: October 7, 2016

Aaron Marc Birt

BS, Lafayette College;

MS, Worcester Polytechnic Institute

MATERIALS SCIENCE AND ENGINEERING—

“Materials and Machines: Simplifying the Mosaic of Modern Manufacturing”

Advisor: Diran Apelian

Yinjie Cen

BS, Central South University, China;

MS, Worcester Polytechnic Institute

MATERIALS SCIENCE AND ENGINEERING—

“Si/C Nanocomposites for Li-ion Battery Anode”

Advisor: Jianyu Liang

Awarded: February 24, 2017

Meinan He

MS, Worcester Polytechnic Institute

MATERIALS SCIENCE AND ENGINEERING—

“High-Voltage Electrolyte-Based on Fluorinated Compounds for High-Energy Li-ion Chemistry”

Advisor: Yan Wang

Awarded: February 24, 2017

Farhad Khosravi

BE, ME, University of Louisville

MECHANICAL ENGINEERING—

“Carbon Nanotubes Micro-Arrays: Characterization and Application in Biosensing of Free Proteins and Label-Free Capture of Breast Cancer Cells”

Advisor: Balaji Panchapakesan

Awarded: October 7, 2016

Gang Li

BS, MS, Harbin Institute of Technology, China

MECHANICAL ENGINEERING—

“Robotic System Development for Precision MRI-Guided Needle-Based Interventions”

Advisor: Gregory Fischer

Awarded: October 7, 2016

Baillie Rae McNally

BS, MS, Worcester Polytechnic Institute

MATERIALS SCIENCE AND ENGINEERING—

“Through-Process Modeling of Aluminum Alloys for Cold Spray: Experimental Characterization and Verification of Models”

Advisor: Richard Sisson

Awarded: February 24, 2017

Samuel Charles Neu

BS, MS, Worcester Polytechnic Institute

AEROSPACE ENGINEERING—

“Experimental and Computational Investigation of Electrohydrodynamically –Enhanced Nucleate Boiling”

Advisor: John Blandino

Awarded: February 24, 2017

Carl Soderhjelm

MS, Lund University, Sweden

MATERIALS SCIENCE AND ENGINEERING—

“Multi-Material Metal Casting: Metallurgically Bonding Aluminum to Ferrous Inserts”

Advisor: Diran Apelian

Anthony George Spangenberg III

BS, Worcester Polytechnic Institute

MATERIALS SCIENCE AND ENGINEERING—

“Engineering of Light Metals for Dynamic Properties and Fatigue Performance”

Advisor: Diana Lados

Niravkumar Amrutlal Patel

BE, North Gujarat University, India;

MTech, Nirma University, India

ROBOTICS ENGINEERING—

“Towards Closed-loop, Robot Assisted Percutaneous Interventions under MRI Guidance”

Advisor: Gregory Fischer

Dmitry Aleksandrovich Sinyukov

BS, MS, South Ural State University, Russia

ROBOTICS ENGINEERING—

“Semi-Autonomous Robotic Wheelchair Controlled with Low Throughput Human-Machine Interfaces”

Advisor: Taskin Padir

MASTER'S DEGREES

ARTS AND SCIENCES

BIOLOGY AND BIOTECHNOLOGY DEPARTMENT

Max Fine Levine
*Bioinformatics and Computational
Biology*

CHEMISTRY AND BIOCHEMISTRY DEPARTMENT

Xiaomeng Liang
Chemistry
Awarded October 7, 2016

COMPUTER SCIENCE DEPARTMENT

Regan Kurt Broderick-Sander
Computer Science

Nicholas Francis Brown
Computer Science

Dennis Joseph Cammer
Computer Science

Anthony Joseph Chenard
Computer Science

Hongzhang Cheng
Computer Science

Ryan Anthony Danas
Computer Science
Awarded October 7, 2016

William Robert Disanto
Computer Science
Awarded February 24, 2017

Lin Du
Computer Science
Awarded February 24, 2017

James Michael Forkey
Computer Science
Awarded October 7, 2016

Zhongyuan Fu
Computer Science
Awarded February 24, 2017

Yifei Gao
Computer Science

Marc Evan Green Jr.
Computer Science
Awarded February 24, 2017

Thomas William Grimshaw
Computer Science
Awarded February 24, 2017

Rafi H. Hayne
Computer Science
Awarded October 7, 2016

Theresa Kathryn Inzerillo
Computer Science

Tengyang Jia
Computer Science

Aniket Prafulla Kadam
Computer Science

Vsevolod Khibkin
Computer Science

Caitlin Anne Kuhlman
Computer Science
Awarded February 24, 2017

Qian Lu
Computer Science
Awarded February 24, 2017

Neha Satish Mahajan
Computer Science
Awarded February 24, 2017

Benjamin John McMorran
Computer Science

Ahmad Moghimi
Computer Science

Mohamed Essedik Najd
Computer Science

Yuxiang Ren
Computer Science

Austin T. Rose
Computer Science

Amit Kumar Srivastava
Computer Science

Xiaoyan Sun
Computer Science

Siqi Tang
Computer Science

Mi Tian
Computer Science

Antonio Rafael Viñaviles Umali
Computer Science
Awarded October 7, 2016

Arun Vadivel
Computer Science

Tuan Quang Vu
Computer Science

Shi Wang
Computer Science

Kuang Xiong
Computer Science

Fan Yang
Computer Science

Libin Yang
Computer Science

Mei Yang
Computer Science

Zhaojun Yang
Computer Science

Chengle Zhang
Computer Science

Jingjun Zhang
Computer Science

Shirui Zhang
Computer Science

Mingyan Zhao
Computer Science
Awarded February 24, 2017

Yihao Zhou
Computer Science

Hongmei Zong
Computer Science

Kai Zou
Computer Science

DATA SCIENCE PROGRAM

Yihan Bao
Data Science

Weina Chen
Data Science

Xinyu Dai
Data Science

Cheng Deng
Data Science

Yichen Ding
Data Science

Bian Du
Data Science

Cut Famelia
Data Science

Shaowei Gong
Data Science

Qiuyi Hong
Data Science

Muyeedul Hoque
Data Science

Xiang Huang
Data Science

Saber Jahanpour
Data Science
Awarded February 24, 2017

Shijie Jiang
Data Science

Yi Jiang
Data Science

Zhenhua Li
Data Science

Haiyan Liang
Data Science

Yuting Liang
Data Science

Caidan Liu
Data Science

Duanduan Liu
Data Science

Jiaqi Liu
Data Science

Zhiyuan Liu
Data Science

Yanran Ma
Data Science

Thomas Francis Meagher II
Data Science

Neehar S. Mukne
Data Science

Nikita Mutta
Data Science
Awarded February 24, 2017

Qianchao Nie
Data Science

Zheng Nie
Data Science

Mu Niu
Data Science

Qijie Pan
Data Science
Awarded October 7, 2016

Amogh Raghunath
Data Science

Zhongzheng Shu
Data Science

Harsh Vardhan Singh Gaur
Data Science
Awarded February 24, 2017

Feiyi Wang
Data Science

Qian Wang
Data Science

Guojun Wu
Data Science

Huan Ye
Data Science

Kanrong Yu
Data Science

Liang Zhang
Data Science

Shile Zhao
Data Science

Lu Zhong
Data Science

Boya Zhou
Data Science

Chen Zou
Data Science

INTERACTIVE MEDIA AND GAME DEVELOPMENT PROGRAM

Yakin Najahi
*Interactive Media and
Game Development*

Ravi Arun Parekh
*Interactive Media and
Game Development*

Kathryn Lexie Elizabeth Williams
*Interactive Media and
Game Development*

**MATHEMATICAL SCIENCES
DEPARTMENT**

Catherine Jean Bonner
Financial Mathematics

Qiyue Chen
Financial Mathematics

Xinyu Chen
Applied Statistics

Amorn Chokchaisiripakdee
Applied Mathematics

Yang Cui
Financial Mathematics
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Yongqiang Cui
Financial Mathematics

Shuaichuan Feng
Financial Mathematics

Yutong Feng
Applied Statistics

Erica Danielle Ford
Master of Mathematics for Educators

Francene Marie Gleason
Master of Mathematics for Educators
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Yuhui Gong
Financial Mathematics

Chuqin Huang
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Joshua Elijah Keller
Industrial Mathematics

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Jiaxin Liu
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Xuan Ning
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Fang Wan
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Lu Wang
Financial Mathematics

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Applied Mathematics

Shuai Zhai
Financial Mathematics

Chi Zhang
Applied Statistics

Jiarui Zhang
Financial Mathematics

Yue Zhao
Financial Mathematics

Siyue Zhou
Financial Mathematics

Tingwen Zhou
Financial Mathematics

Tianyu Zou
Applied Statistics

Zhiyao Zuo
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Physics for Educators
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Claudio Salazar
Physics for Educators
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Gawain Matsen Thomas
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Wiphu Youyen
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**SOCIAL SCIENCE AND POLICY
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System Dynamics
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George Johnson-Orban
System Dynamics

Thomas Wittig
System Dynamics
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Raid Mahmoud Zaini
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ENGINEERING

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Vivian Liang
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Zachary Eugene Sellman
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Brian James Sokoloff
Biomedical Engineering

Julie Anne Tevenan
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Trabucco
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Zijian Ma
Chemical Engineering

Zhengyang Yang
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Tatyana Dudiac
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Civil Engineering

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Civil Engineering
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Civil Engineering

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Matthew DeMorais Crivello
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Mert Can Erad
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Ye Tian
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Yaofei Yang
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Amir Zalloum
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Electrical and Computer Engineering

Huan Zhao
Electrical and Computer Engineering

Yufei Zheng
Electrical and Computer Engineering

Xiangchen Zhu
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David Scott Ziegenfuss
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Rebecca Mae Barolli
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Emily Grace Brecher
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Ronald Eric Brewer
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John Edward Caliri Jr.
Fire Protection Engineering

Anthony Michael Campanella Jr.
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Anthony Mario Capuano
Fire Protection Engineering

Sumeet Kaur Chani
Fire Protection Engineering
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Fire Protection Engineering

Samuel Vaughn Flibbert
Fire Protection Engineering

Matthew Wheelock Foley
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Connor Patrick Gillespie
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Meghan Elizabeth Goodwin
Fire Protection Engineering

Victoria Alecia Grimes
Fire Protection Engineering
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Eli Samuel Horden
Fire Protection Engineering
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Francisco Kang
Fire Protection Engineering

Camden Michael Knoff
Fire Protection Engineering

Justin Scott Leany
Fire Protection Engineering
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Qi Li
Fire Protection Engineering

Stephen Thomas Maglione
Fire Protection Engineering
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Alexandra Sherman Miller
Fire Protection Engineering

Jonathan Nicholas Mirabito
Fire Protection Engineering

Laura Elizabeth Moreno
Fire Protection Engineering
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Wilfredo Ramos Jr.
Fire Protection Engineering

Shannon Marie Rice
Fire Protection Engineering

Samim Safaei Boroojeny
Fire Protection Engineering
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Mariah Rose Seaboldt
Fire Protection Engineering
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Jennifer Ellen Shepherd
Fire Protection Engineering
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Keith Joseph Sullivan
Fire Protection Engineering

Christopher Peter Tolentino
Fire Protection Engineering
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Mai Tomida
Fire Protection Engineering

Panyawat Tukaew
Fire Protection Engineering

Sandra Christine Twilley
Fire Protection Engineering
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Kristina Zichelli
Fire Protection Engineering
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**MECHANICAL ENGINEERING
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Mechanical Engineering

Robert Joseph Aguece
Mechanical Engineering
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HAIDAR AL HADDAD
Mechanical Engineering
Awarded February 24, 2017

Gillian N. Allsup
Mechanical Engineering
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Mustafa Shaker Alshaikh
Mechanical Engineering

Benjamin Matthew Andrews
Aerospace Engineering

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Aerospace Engineering

Shivaprasad Arava
Mechanical Engineering
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Muhammad Kashif Azeem
Mechanical Engineering
Awarded February 24, 2017

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Manufacturing Engineering

Michael Robert Barney
Manufacturing Engineering

Andrew James Bauer
Mechanical Engineering

Lee Edward Bouldin
Manufacturing Engineering

Casey Joseph Broslawski
Mechanical Engineering

Nicholas Gary Burnell
Mechanical Engineering
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Mechanical Engineering
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Mechanical Engineering

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Michael Cournoyer
Mechanical Engineering

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Mechanical Engineering
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Eric Christopher Falor
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Weijie Wu
Materials Science and Engineering

Tao Yan
Materials Science and Engineering

Yang Yang
Materials Science and Engineering

Caicai Ye
Materials Science and Engineering

Sheng Ye
Materials Science and Engineering

Qing Yin
Materials Science and Engineering

Christian Alexis Zelaya
Aerospace Engineering

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Hanqing Zhao
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David Frederick Hughes III
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Zakaria Ouzzif
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Justin Patrick Preece
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Kojo Asante Sefah
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Jordan Hans Shenk
Power Systems Management
Awarded February 24, 2017

ROBOTICS ENGINEERING PROGRAM

Mihir Acharya
Robotics Engineering

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Georgios Ardamerinos
Robotics Engineering

Michael John Baucum
Robotics Engineering

Aditya Bhat
Robotics Engineering

Kevin Michael Cariddi
Robotics Engineering

Nikhil Dilip Deshpande
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Anany Dwivedi
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Renato Girardi Gasoto
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Colin Michael Gladding
Robotics Engineering

Ari Benjamin Goodman
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Sayre Paul Jeannet
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Ananth Jonnavittula
Robotics Engineering

Dharmateja Kadem
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Sahil Kejriwal
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John Devir Kelly
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Syamprasad K Rajagopalan
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Dikshya Swain
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Adela Hsien-Neng Wee
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Ujwal Annadata
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Charles Christopher Banos
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Nupur Anil Bansod
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Justin Michael Chretien
Management
Awarded February 24, 2017

Tyler Bruce Cichowlas
Master of Business Administration

Lisa Marie Clark
Management

Charles Edward Climer Jr.
Master of Business Administration
Awarded October 7, 2016

David Clinton Collins
Master of Business Administration
Awarded February 24, 2017

Michael Andrew Conrad
Master of Business Administration
Awarded February 24, 2017

Zachary Louis Culp
Management

Anurag A. Desai
Information Technology

John Francis Dinand Jr.
Master of Business Administration
Awarded October 7, 2016

Jiani Ding
Operations Design and Leadership
Awarded February 24, 2017

Weiyi Ding
Operations Analytics and Management

Marc F. Dinino
Master of Business Administration
Awarded October 7, 2016

Joseph Maurice Donohue
Master of Business Administration
Awarded October 7, 2016

Timothy Curtis Dow
Management

Anthony Lee Dragich
Master of Business Administration
Awarded October 7, 2016

Emalee Claire Drake
Operations Design and Leadership
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Allison Kenya Elmer
Master of Business Administration
Awarded October 7, 2016

Samantha Ann Ervin
Management

Julie Elizabeth Fehlmann
Operations Design and Leadership
Awarded February 24, 2017

Xiaohang Fei
Master of Business Administration

Erika L. Fiala
Master of Business Administration

Elizabeth Rose Pagaduan Fitch
Operations Analytics and Management

David C. Fogaren Jr.
Master of Business Administration
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Alexandra Monique
Francois-Saint-Cyr
Master of Business Administration

Pooja Ameet Gandhi
Operations Analytics and Management

James Leonard Garvin
Master of Business Administration
Awarded October 7, 2016

George Michael Giglio
Master of Business Administration

Elisa Gjoka-Komoni
Master of Business Administration

Sachin Goel
Information Technology

Daniel J. Goncalves
Master of Business Administration
Awarded February 24, 2017

Radhika Gopinath
Master of Business Administration

Minal Hemantkumar Goyal
Information Technology

Jessica Elizabeth Grande
Master of Business Administration

Christopher Joseph Thomas Gregory
Information Technology

Jennifer M. Griffin-Driscoll
Master of Business Administration

William George Grudzinski Jr.
Information Technology
Awarded October 7, 2016

Xiaofan Gu
Operations Analytics and Management

Morgan Lee Guardino
Master of Business Administration

Elizabeth Anne Hansen
Management

Mark Francis Harrington
Master of Business Administration

Jennifer Lynn Harvey
Operations Analytics and Management

Jennifer Lynn Harvey
Master of Business Administration

Shan He
Information Technology
Awarded February 24, 2017

Zhuoming He
Information Technology

Rachel Katharine Heller
Master of Business Administration

Gregory Michael Hencir
Master of Business Administration

Rio Hendarwan
Master of Business Administration
Awarded February 24, 2017

Mojtaba Hoshmand
Management

Lijia Huang
Marketing and Innovation
Awarded February 24, 2017

Qingya Huang
Marketing and Innovation

Yao Huang
Operations Analytics and Management

Prateek Jain
Information Technology

Arun Prakash Jayabalakrishnan
Master of Business Administration
Awarded February 24, 2017

Nisi Ji
Operations Analytics and Management

Xiaolin Jiang
Operations Analytics and Management

Christopher Harold Johnson
Master of Business Administration

Akshata Kamat
Information Technology

Chirantan Jaydev Kanani
Master of Business Administration

Viraj Vinay Karnik
Information Technology

Elizabeth Koestler Karpinski
Operations Analytics and Management

Jasmeet Kaur
Information Technology
Awarded February 24, 2017

Hardik Kohli
Master of Business Administration
Awarded October 7, 2016

Charles Martin Koutsogiane Jr.
Management
Awarded February 24, 2017

Abha Kulkarni
Information Technology

Adam Stafford Lafleur
Master of Business Administration

Nitinnarayanan Lakshminarayanan
Information Technology

David R. Ledoux
Master of Business Administration
Awarded October 7, 2016

Jonathan Charles Legare
Master of Business Administration
Awarded October 7, 2016

Fuyan Li
Master of Business Administration

Geyang Li
Information Technology

Geyang Li
Marketing and Technological Innovation
Awarded October 7, 2016

Tingyu Li
Information Technology

Jinlian Lin
Marketing and Technological Innovation
Awarded October 7, 2016

Tingting Lin
Operations Analytics and Management

Yanling Lin
Marketing and Innovation

Chang Liu
Operations Analytics and Management
Awarded February 24, 2017

Fangyi Liu
Information Technology

Jielei Liu
Operations Analytics and Management

Qianying Liu
Operations Analytics and Management
Awarded February 24, 2017

Si Liu
Information Technology

Yue Liu
Operations Analytics and Management

Daniel Christopher Long
Master of Business Administration

Yixin Luo
Information Technology

Tianqing Ma
Marketing and Innovation

Piyush Malviya
Information Technology

Safi Mansoor
Master of Business Administration
Awarded October 7, 2016

James Carroll McGlynn
Master of Business Administration

Adam Brian McNally
Management

Lisa Ann Michaud
Master of Business Administration

Kamal Mihani
Information Technology

Morgan N. Mitchell
Management

Pankaj Mittal
Operations Analytics and Management

David W. Mwangi
Management
Awarded Posthumously

Sonali Digambar Naik
Information Technology

Kelly Elizabeth Napier
Master of Business Administration

Anna Marie Nash
Master of Business Administration
Awarded October 7, 2016

Tristan Khoa Nguyen
Master of Business Administration

Emma Rose Palmacci
Master of Business Administration
Awarded October 7, 2016

Yixiong Pan
Marketing and Innovation

Luke Christian Pantuosco
Management

Stephanie Pals Papia
Master of Business Administration
Awarded February 24, 2017

Sneha Dnyaneshwar Patil
Operations Analytics and Management

Yi Peng
Operations Analytics and Management

Bonham James Pierce
Management
Awarded February 24, 2017

Sai Bharat Pinnamaraju
Information Technology

Thomas Joseph Plasse
Information Technology
Awarded October 7, 2016

Xi Qiao
Management

Matthew D. Rand
Master of Business Administration
Awarded October 7, 2016

Rachel Catherine Riley
Management

Prerana Hemanta Rout
Information Technology

Jessica Mary Ruscitti
Master of Business Administration

Michael George Sack
Master of Business Administration

Namrata Saha
Information Technology

Sheetal G. Salunke
Information Technology

Ashwin Sathiyaveeswaran Sathy
Information Technology

Sayan Sengupta
Information Technology
Awarded October 7, 2016

Mohana R. Sethuraman
Master of Business Administration
Awarded October 7, 2016

Nicolle Alexandra Shandrow
Management

Michael Shea
Master of Business Administration

David Joseph Silva
Master of Business Administration

Saurabh Kumar Singh
Information Technology

Sugandha Singh
Information Technology

Jigisha Sinha
Information Technology

Yiyang Song
Master of Business Administration

Scott Joseph Spear
Management

Divya Tandon
Information Technology

Chenhao Tang
Information Technology

Sandra T. Taubert
Management
Awarded February 24, 2017

Wilander Anthony William Tauro
Information Technology

Roshan George Thekkekunel
Master of Business Administration
Awarded February 24, 2017

Vijay Tirumalai A Pursai
Master of Business Administration

Matthew J. Twerdy
Master of Business Administration
Awarded October 7, 2016

Felicia Adrienne Vidito
Master of Business Administration

Andis Vildavs
Master of Business Administration
Awarded October 7, 2016

Christopher Pak Villalta
Master of Business Administration
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Manjiri Madan Virkar
Information Technology
Awarded October 7, 2016

Zhaoran Wang
Information Technology

Timothy Matthew Watts
Master of Business Administration
Awarded October 7, 2016

Daniel Adam Wolf
Master of Business Administration

Beilin Wu
Master of Business Administration

Yixuan Wu
Information Technology
Awarded February 24, 2017

John F. Wyatt, Jr.
Master of Business Administration

Ruochen Xing
Marketing and Innovation

Le Xiong
Operations Analytics and Management

Ruicheng Xu
Information Technology
Awarded October 7, 2016

Wenhui Xu
Marketing and Innovation

Yidan Xu
Information Technology

Yijiang Xu
Management

Zeynep Deniz Yalcin
Marketing and Technological Innovation
Awarded February 24, 2017

Zhongyi Yang
Marketing and Innovation

Xiaoyu Yao
Information Technology

Yin Yao
Operations Analytics and Management

Chandan Yathagadahally Puttaswamy
Information Technology

Anupama Anupam Yeole
Information Technology

Ying Ying
Marketing and Innovation

Hang Yu
Information Technology

Pei Zang
Marketing and Innovation

Shuo Zhang
Management
Awarded October 7, 2016

Yifan Zhang
Information Technology

Jie Zhao
Operations Analytics and Management

Ye Zheng
Master of Business Administration
Awarded February 24, 2017

Feng Zhu
Information Technology

Yi Zhu
Information Technology

Daniel Leonard Zuber
Master of Business Administration
Awarded October 7, 2016

The names published in this Commencement program were determined from information available at the time of printing, which preceded the faculty vote on degrees. Inclusion of a name in the program is not testimony to completion of WPI's degree requirements and does not commit WPI to award a degree.

ACADEMIC HONORS AND AWARDS

SIGMA XI GRADUATE RESEARCH AWARD

Anthony Spangenberg, *PhD*, “Engineering of Light Metals for Dynamic Properties and Fatigue Performance”
Advisor: Diana Lados

Muping Chen, *MS*, “A Finite Element Approach to Feynman Diagrams and Self-Energy Corrections: I Formalism”

Advisor: Ramdas Ram-Mohan

This award, established in 1983, is presented for outstanding research by students at the doctoral and master’s levels and is sponsored jointly by the Society of the Sigma Xi and the Committee on Graduate Studies and Research.

13: INVESTING IN IDEAS WITH IMPACT AWARD BEST OVERALL

Meagan Carnes, *PhD*, *Biomedical Engineering*, “Fibrin Microthreads for Treating Chronic Muscle Injuries”
Advisor: George Pins

Mitchell Muller, *MS*, *Robotics*, “Gyroscopic Shoulder Prosthesis to Dynamically Assist Arm Amputees During Movement”
Advisor: Marko Popovic

GRADUATE RESEARCH INNOVATION EXCHANGE FIRST PLACE AWARDS

MS, OVERALL

Johanna Santos, *Biomedical Engineering*, “Fabrication of a Functional Fibrin-Based Microvascular Network”
Advisor: George Pins

Habibeh Ashouri Choshali, *Civil and Environmental Engineering*, “Effect of Tablets’ Waviness on the Mechanical Response of Nacreous Materials: Modeling and Experiment”
Advisor: Nima Rahbar

PHD, ARTS AND SCIENCES

Tyler Reese, *Mathematical Sciences*, “Binary Matroids and Kirchhoff Graphs”
Advisor: Joseph Fehribach

PHD, BUSINESS AND SOCIAL SCIENCE

Christopher Chagnon, *Foisie Business School*, “Creating and Modeling a Decision Support System for Optimizing Service Classification and Assignment”
Advisor: Soussan Djamasbi

PHD, DATA SCIENCE AND CYBERSECURITY

Ramaza Ahsan, “Interactive Time Series Exploration Powered by the Marriage of Similarity Distances”
Advisor: Elke Rundensteiner

PHD, ENGINEERING

Benjamin Cooper, *Mechanical Engineering*, “Dynamic Sensor-Actor Interactions for Path-Planning in a Threat Field”
Advisor: Raghvendra Cowlagi

Xiaokong Yu, *Civil and Environmental Engineering*, “Investigation into Chemical-Mechanical Links of Bituminous Materials”
Advisor: Mingjiang Tao

PHD, LIFE SCIENCES AND BIOENGINEERING

Christopher Chute, *Biology and Biotechnology*, “TYRA-2: A Trace Amine Receptor’s Role in an Innate Avoidance Response”
Advisor: Jagan Srinivasan

Douglas Reilly, *Biology and Biotechnology*, “Identification of a G Protein-Coupled Receptor Mediating a Social Behavior”
Advisor: Jagan Srinivasan

PHD, ROBOTICS AND CYBERPHYSICAL SYSTEMS

Shadi Tasdighi Kalat, *Mechanical Engineering*, “Virtual Coordination in Collective Object Manipulation”
Advisor: Cagdas Onal

