ABOUT WPI

Founded in 1865 in Worcester, Mass., WPI is one of the nation’s first engineering and technology universities. Its 14 academic departments offer more than 50 undergraduate and graduate degree programs in science, engineering, technology, business, the social sciences, and the humanities and arts, leading to bachelor’s, master’s, and doctoral degrees. WPI’s talented faculty work with students on interdisciplinary research that seeks solutions to important and socially relevant problems in fields as diverse as the life sciences and bioengineering, energy, information security, materials processing, and robotics. Students also have the opportunity to make a difference to communities and organizations around the world through the university’s innovative Global Projects Program. There are more than 50 WPI project centers throughout the Americas, Africa, Asia-Pacific, and Europe.
Project sponsors include...

AbbVie
Achaemenid LLC
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EarlySense
GE Healthcare Life Sciences
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State Street Bank and Trust
The MITRE Corporation
University of Massachusetts Medical School
United Parcel Service (UPS)
United Technologies Corporation
Zurich University of Applied Sciences

WPI Projects Program and Sponsorship

The projects program at WPI is the university's signature approach to undergraduate education, combining theoretical study with practical problem solving. We bring together the brilliant minds and talents of our student teams and faculty advisors with a wide variety of corporate, government, and nonprofit organizations. Collaboratively, we address real business needs, synergizing to create meaningful results.

Project work is one of the most distinctive aspects of a WPI education and has been at the core of WPI's undergraduate curriculum for more than 45 years. It provides students the opportunity to gain professional skills, a talent for teamwork, and the confidence to dive right in. Together with our corporate partners, we are making progress one project at a time.

WPI welcomes sponsorship for our Major Qualifying Projects. If you are interested in discussing a possible sponsorship opportunity, please contact Sharon Deffely, Executive Director of Academic and Corporate Engagement, at 508-831-5635 or sdeffely@wpi.edu.

Following are some general guidelines for project sponsorship:

• A project cannot be "mission critical" or on the "critical path."
• The best types of projects support or enhance current activities.
• Most MQPs consist of a team of students (2-4) and a faculty advisor, although in some cases—depending upon the scope of the project and the disciplines of the student team—there may be additional advisors.

For more information about sponsoring a project, please visit wpi.edu/+engage.

"MilliporeSigma has sponsored a number of Major Qualifying Projects (MQPs) over the past several years. We have been consistently impressed with the technical depth, collaborative approach, and professionalism demonstrated by WPI students in the completion of these projects."

Michael Whalen
Head of Process and Technology Separations Technology Cluster
MilliporeSigma
Once a year, WPI students take time out from their studies to present to their faculty advisors and sponsors the results of their Major Qualifying Projects, or MQPs (one of two significant academic projects all WPI students complete). The MQP is a professional-level design or research experience generally completed in teams and often sponsored by corporations or other external organizations. The projects mirror the kinds of professional work students will tackle in their careers.

The project experience prepares students to lead team efforts, to communicate professionally, to meet deadlines and exceed expectations, to deal with ambiguity and unexpected difficulties, and to consider not just the technical, but the ethical and social dimensions of their work. The projects must be thoroughly documented in written reports, and virtually all teams make oral presentations of their results. These are the presentations you will see today.

Often MQPs lead to publications in peer-reviewed journals, presentations at regional and national conferences, and patents. Some become the foundations for entrepreneurial ventures. Others become useful innovations and products for their corporate sponsors. But no matter what becomes of an MQP, the chances are it has already served as an effective capstone to a WPI education and a profound steppingstone to a successful and rewarding career and life.

### Presentations by Department

2 Aerospace Engineering  
2 Biology and Biotechnology  
4 Biomedical Engineering  
5 Business  
6 Chemical Engineering  
8 Chemistry and Biochemistry  
9 Civil and Environmental Engineering  
10 Computer Science  
13 Electrical and Computer Engineering  
14 Humanities and Arts  
15 Interactive Media & Game Development  
15 Mathematical Sciences  
16 Mechanical Engineering  
19 Physics  
20 Professional Writing  
20 Robotics Engineering  
22 Social Science and Policy Studies
Project Presentation Day Schedule

Aerospace Engineering

Higgins Labs, Room 116

8:30am
Quasi-Static and Dynamic Testing of Composite Materials
Harrison Hertlein, Nathan Siegel, Jacob Wilson, Marysol Zamaniego Cuahonte
Advisor: Nikhil Karanjgaokar

8:50am
Detection and Estimation of a Plume with an Unmanned Terrain Vehicle
Theresa Bender, Katherine Burris, Spencer Herrington, Daniel Weber
Advisor: Michael Demetriou

9:10am
Design of an MAV for the 2019 SAE Aero Design Competition
Diana Celaj, Heather Cummings, Nicholas Cunha, Adam Frewin, Zachary Hearl, Nicholas Manos, Michael Oswald, Amelia Wilson
Advisors: David Olinger, Raghvendra Cowlagi

9:30am
Interfacial Adhesion of Polymer-Metal Composites
Amanda Toledo Barrios
Advisor: Nikhil Karanjgaokar

10:00am
Design and Integration of a High-Powered Model Rocket – I
Colin Cooper, Amanda Dings, Peter Dohn, Jacob Fennick, Kyle Foster, Eve George, Nicholas Lapierre, Ty Moquin
Advisors: Nikolaos Gatsonis, Jun Yang

10:30am
Design and Integration of a High-Powered Model Rocket – II
Alexander Alvarez, Grace Gerhardt, Evan Kelly, John O’Neill, Jackson Whitehouse
Advisors: Michael Demetriou, John Blandino

10:40am
Design and Integration of a High-Powered Model Rocket – III
Jean Furter, Steffany Halfrey, Mason Handy, Vanessa Legere, Nicolas Lucena Farias, Connor Murphy, Nicholas Songer, Justin Tavares
Advisors: John Blandino, Jagannath Jayachandran

11:00am
Vertical Take-off and Landing Autonomous Aircraft Design
Quintin Barker, Troy Bergeron, Jacob Goldsberry, Romelle Jack, Benjamin Pasculano, Bailey Waterman, Tyler Weiss, Zachary Zolotarevsky
Advisors: Raghvendra Cowlagi, David Olinger

Biology and Biotechnology

POSTER SESSION, 9:30am to 11:30am
Rubin Campus Center, Odeum

Relationship between Promensil and Estrogen Receptor Alpha in Breast Cancer Cells
Michael Aquino, Andrew Ellis, Sofia Giansiracusa
Advisors: Jill Rulfs, Mike Buckholt

Mutations in Kinesin 5A Effect on Mitochondrial Mobility in Amyotrophic Lateral Sclerosis and Hereditary Spastic Paraplegia
Jacqueline Garcia
Advisor: Amity Manning
Sponsor: Claudia Fallini, MD, UMMS

In vitro Efficacy of Artemisia annua Dried Leaf Extracts against Candida sp.
Claire Dickson-Burke, Olivia Gray
Advisor: Pam Weathers

Designing T-cell Receptor Constructs Using Golden Gate Cloning
Maxwell Studley
Advisor: Jill Rulfs
Sponsor: Samuel Behar, MD, UMMS

Investigating the Role of DEAD-box Helicase VBH-1 in C. Elegans
Johan Girgenrath
Advisor: Elizabeth Ryder
Sponsor: Craig Mello, MD, UMMS
Sex Pheromone Attractive Response in *C. elegans* and Related Species
Jane Lockery
Advisor: Jagan Srinivasan

The Impact of Composting Worms on Arugula Plant Biomass and the Soil Microbiome in an Organic Living Soil System
Locke Ezra-Ros Bonomo
Advisors: Jill Rulfs, Mike Buckholt

The Gut Microbiome and Cognitive Function of Dementia Patients Living in Long-Term Care Facilities
Allison O’Neill
Advisor: Jill Rulfs
Sponsor: John Harran, MD, UMMS

Investigating the Role of DNA Methylation in *Mycobacterium smegmatis*
Samantha Randall
Advisor: Scarlet Shell

Expression of the Mycobacterial Housekeeping Sigma Factor sigA Is Affected by Sequences in Its 5’ UTR and Coding Sequence
Tien Nguyen
Advisor: Scarlet Shell

Nanogold Labeling Reveals a Conformational Change in the Exocyst Complex
Alexander Czuchra
Advisor: Luis Vidali
Sponsor: Mary Munson, UMMS

Investigating the Impact of Fragile X Syndrome on Stress Granule Formation
Brianna Burke, Renee Leclaire, Lindsey Merrill, Solimar Ramis De Ayre Flor Reyes
Advisor: Natalie Farny

Granulysin in Cytotoxic CD8 T-Cells
Edith Sawyer
Advisor: Lou Roberts
Sponsor: Samuel Behar, MD, UMMS

Transcriptional Regulation of Non-Coding RNAs by Retinoblastoma Tumor Suppressor Protein
Hammad Sadiq
Advisor: Amity Manning

Laterally Grafted Leaves as Perfusable Scaffolds for Human Cell Culture
Yueqing Wang
Advisor: Pamela Weathers

Using Beta Endorphin as an Opioid Addiction Model in *C. elegans*
Michael Savoie, Bailey Sweet
Advisor: Jagan Srinivasan

Lung Levels of Neutrophil-Related Chemokines Do Not Correlate with M. tb Levels in 8 Mouse Strains
Emily McGlone
Advisor: Dave Adams
Sponsor: Gillian Beamer, Cummings School of Veterinary Medicine-Tufts University

Effects of Promensil on T47D Breast Cancer Cells in Regard to Apoptosis, the Cell Cycle, and Estrogen Receptor-α
Daniel Crosby, Madeline Manfra-Levitt, James Veliz
Advisors: Jill Rulfs, Mike Buckholt

Urban Rodents and Influenza
Joseph Evans, Matthew Araujo
Advisor: Jill Rulfs
Sponsor: Jonathan Runstadler, Cummings School of Veterinary Medicine-Tufts University

Remote Brief Intervention and Referral to Treatment for Alcohol
Brianna Courteau
Advisor: Jill Rulfs
Sponsor: Edwin Boudreaux, UMMS

Whip-Poor-Will Ecology: Arthropod Abundance in Bolton Flats Wildlife Management Area
Elena Stratis, Elizabeth Walkes
Advisor: Marja Bakermans

Investigating A4 Bacteriophage DNA Primase
Daniel Champlin, Eoin O’Connell, Jennifer Payano
Advisors: Elizabeth Ryder, JoAnn Whitefleet-Smith

High Throughput Screening in *Caenorhabditis elegans*
Akshaye Amish Shah
Advisor: Elizabeth Ryder
Sponsor: Marian Walhout, UMMS

Pubmed AuthorMap: A Study of Research Collaboration in the Life Science Fields
Amanda Moulaison, Haylea Northcott
Advisors: Dimitry Korkin, Elizabeth Ryder
Sponsor: Amir Mitchell, UMMS

Correlate Analyses for Acutely Infected HIV Progressors and Controllers
Kylie Dickinson
Advisor: Elizabeth Ryder
Sponsor: The Ragon Institute

Phylogenetic Analysis of MyoB in *Physcomitrella patens*
Jordan Flores Hollands
Advisor: Luis Vidali
Low-Temperature Tissue Preservation
Kristen Dettloff, Alicia Howell-Munson, John Schwamb, Alessandra Torres
Advisors: Elizabeth Ryder, Marsha Rolle, Destin Heilman (CBC)

Biomedical Engineering

SESSION 1
Salisbury Labs, Room 115 (Kinnicutt)

9:10am
Automated High Throughput Linear Actuator for Engineered Muscle Cells
Benjamin Chaffee (ME), Thomas DiPersio (ME), Katherine Kowalczyk, Victoria Velashea
Advisor: Kristen Billiar

9:30am
Preventative Wrestler Headgear
Catherine Matyas, Marissa Pereira
Advisor: Tiffiny Butler

9:50am
Circulating Cancer Cell Collection Device
Kelly Borden, Sydney Hurley, Rachel Peterson
Advisor: Jeannine Coburn

10:20am
Leef Jerky: A Sustainable Meat Product for a Better Future
Fatin Alkhaleli, Brian Moore, Alex Rebello, Daniel Sochacki
Advisor: Glenn Gaudette

10:40am
Ultrasound for Knee Osteoarthritis Screening: A Panoramic Reconstruction of the Knee Joint
Rosanna Heidt, Olivia Leavitt, Shion Matsumoto
Advisor: Karen Troy

SESSION II
Salisbury Labs, Room 104

9:10am
Wireless ECG and Pulse Oximeter Sensor
Victoria Crowley, Stephanie Huang (ECE), Kiriaki Rajotte (ECE), William Wartman (ECE)
Advisors: Yitzhak Mendelson, Edward Clancy (ECE)

9:30am
Design of a Biomimetic Mechanical Stimulator for Engineered Myocardium
Daniela Cerkanowicz, MacKenzie Conlen, Shahnaz Ghahremani, Aaron Rosenthal
Advisor: George Pins

9:50am
Protein Releasing Microspheres for an In Vitro Intimal Hyperplasia Model
Mateo Frare, Joshua Manning, Teniola Oguntolu, Arth Sharma
Advisors: Marsha Rolle, Catherine Whittington

10:20am
Development of a Microscope Stage BioStretch Device for Mechanobiology
Joshua Boynton, Alexander Cruz, Megan Hendrie, Elizabeth Quevillon
Advisor: Kristen Billiar

10:40am
Warm Skin Preparation Applicators for Reduced Patient Discomfort
Alicia Costi, Ravneet Kaur, Emily Kolaya, Kalyn Ricciuti
Advisors: Jeannine Coburn, Sarwat Hussain (UMMS)

SESSION III
Salisbury Labs, Room 105

9:10am
Analysis of Agents for Tissue Cryopreservation
Kristen Dettloff, Alicia Howell (BCB), John Schwamb, Alessandra Torres (CBC)
Advisors: Marsha Rolle, Destin Heilman (CBC), Elizabeth Ryder (BCB)

9:30am
Design of a Standardized in vitro Model of Skeletal Muscle Regeneration for Implantable Microthread Scaffolds
Erin Heinle, Emily Morra, Emily Mossman, Alyssa Paul
Advisors: George Pins, Catherine Whittington

9:50am
Design of a Wearable Sensor System for Prevention of Fatigue-Induced Injuries in Baseball Pitching
Julia Dunn, Lauren Guertin, Madison Michaud
Advisor: Karen Troy
10:20am
Design and Prototyping a Compressive CPR Assistive Device
Benjamin Abram, Eric Chiem (ME), Zoey Foley, John Ringuette
Advisor: John Sullivan (ME)

10:40am
Image Guided TUR
Grayson DeLuca (ME), Alexander Kuros, Jameson Moore
Advisors: Songbai Ji, Sarwat Hussain (UMass)

11:00am
Tracking Ultrasound Probe Positions
Franck Coly, Justin Korn, Angelica Pollard-Knight, Jada Plummer
Advisors: Kwonmoo Lee, Khashayar Rafatzand (UMMS)

Business

POSTER SESSION, 8:30am to Noon
Washburn Shops, Room 229

A Meta-Analysis on Driver Safety and Cannabis Impairment
Wesley Fischer, Nathaniel Lambert, Robert Rosen
Advisors: Dimitrios Koutmos, Jianyu Liang (ME), Buddika Peiris (MA)

BNP Paribas: Symphony Chatbot
Yiyi Chen, Matthew Nicholson, Yaofeng Wang
Advisors: Kevin Sweeney, Michael Ciaraldi (CS), Renata Konrad
Sponsor: BNP Paribas

Compostable Tableware
Jessica Hanley, Ryan Herrmann, Tess Hudak, Rose Lewis, Peter Ross
Advisors: Sarah Wodin-Schwartz (ME), Walter Towner

Creating a Defect Reporting and Quality Reconciliation System
Cassandra Salafia
Advisors: Walter Towner, Torbjorn Bergstrom (ME), Helen Vassallo

Design and Analysis of Packaging Methods at PepsiCo Frito-Lay
David Bovich, Lillian Olsen, Nathan Pietrowicz, Benjamin Seitz
Advisors: Walter Towner, Torbjorn Bergstrom (ME), Helen Vassallo
Sponsor: PepsiCo Frito-Lay

Designing a Sustainable, Long-term Revenue Model for Turn Back Time
Marc Printz
Advisor: Michael Elmes
Sponsor: Turn Back Time

Effects of Navigation Design in Clinical Decision Aid
Andrew Aberdale
Advisors: Bengisu Tulu, Soussan Djamalsbi
Sponsor: UMass Memorial Medical Center

Enhancing the Candidate Recruitment and Application Experience at Pratt and Whitney
Erik Fyer, Elizabeth Jones, Huaxin Yang
Advisor: Eleanor Loiacono
Sponsor: Pratt & Whitney

Expanding Operations for Battery Steele Brewing
Carrie Pozaic, Cassidy Sequin, Kathleen Sheehy
Advisors: Sharon Johnson, Stephen Kmiotek (CM)
Sponsor: Battery Steele Brewing

Implementing a Culture of Philanthropy at WPI
Akaash Claypool
Advisor: Francis Hoy
Sponsor: WPI Office of Lifetime Engagement

Improvement of Crew Deployment Procedure
Daniel Suitor
Advisor: Joseph Sarkis
Sponsor: SavATree

Improving Refugee Resettlement in the US Through Analytics
Roberto Esquivel, Toni Joy, Jean Philippe Miraola, Jenna Vandervort
Advisor: Andrew Trapp
Sponsor: HIAS

Improving U.S. Foster Care Service Allocation: Predicting and Minimizing Days in Care among Children Whose Caretakers Suffer from Substance Abuse
Benjamin Diefendorf, Riley Doherty, Ryan Tropeano, Kameron Yagoobi
Advisors: Andrew Trapp, Emily Douglas (SSPS)

Integrated Supply Chain and Inventory Management System at Raytheon
Holly Cadran
Advisors: Walter Towner, Michael Ginzberg
Sponsor: Raytheon
Chemical Engineering

POSTER SESSION, 8am to Noon
Salisbury Labs, Room 402

The Acid Catalyzed Polycondensation of Furfuryl Alcohol
Katherine Charla, Christopher Cyr, Sarah McKeage, Kelly Vodola
Advisor: Stephen Kmiotek

Taxus Cell Culture to Delivery System: A Novel Approach to Administer Paclitaxel
Dasia Aldarondo, Donald Dione, Adele Werner
Advisors: Susan Roberts, Jeannine Coburn (BME)

Carbon Quantum Dot Solar Cells
Lucas Gagne, Xandria Korn, Alexander Rockcress
Advisors: Michael Timko, Pratap Rao (ME)

Determining the Effect of Ultrasonic Pretreatment on Anaerobic Digestion of Barley Bagasse
Kerry Muenchow
Advisor: Michael Timko

Second Generation Ethanol Production Using Subcritical Water Hydrolysis on Sugarcane Bagasse and Straw
Kyle Hanlon, Marco Interlandi (CHE & PH)
Advisors: Michael Timko, Germanno Iannacchione (PH)
Ocean Spray Craisins
Angela Calvi, John Kahler, James O’Connor, Robert Papp, Joshua Shukan
Advisors: Stephen Kmiotek, Elizabeth Stewart, Patricia Stapleton (SS), Sarah Wodin-Schwartz (ME)

Optimization of the Filtration Method for Yellow Encapsulated Pigment Dispersion
Nikki Loiseau, Lauren Souza
Advisors: Stephen Kmiotek, Elizabeth Stewart

Methods for Modeling Polarons
Thang Duc Pham
Advisor: Aaron Deskins

Hydrothermal Liquefaction of Food Waste
Daniela Fraga, Carla Romo
Advisor: Michael Timko

Design of a Standardized Brew
Michael Ambrose, Marco Gomez
Advisor: Stephen Kmiotek

Photoelectrode Water Decontamination
Salvador Alvarado, Ryan Choate, Alan Phung, Matthew Scanlon
Advisor: Pratap Rao (ME)

Melt Processing of Bil3Cells
Joshua Usiskin
Advisor: Pratap Rao (ME)

Light Activation of Xanthophyllomyces dendrorhous Metabolites
Celeste Marsan
Advisor: Eric Young

Modification of Back-Surface Contacts to Antimony Sulfide Active Layers Using Carrier-Selective Thionated Perylene Derivatives for Improved Photovoltaic Performance
Curtis Doiron
Advisor: Ronald Grimm (CBC)

Two-Stage Anaerobic Digestion of Orange Peels
Alexis Zoffreo
Advisor: Michael Timko

Low Conversion Ethanol Dehydration
Kyle Werra
Advisor: Michael Timko

Not Presenting Due to Confidentiality—or Presenting for Their Sponsors

Investigating and Mitigating the Capacity Constraints of AbbVie’s Ultrapure Water System
Ashley Blanchard, Dominique O’Halloran, Lawrence Valeros, Olivia Verdone
Advisor: Stephen Kmiotek

Rare Earth Elements and Their Behavior During Water Treatment in Nancy, France
Matthew Biondi, David Lech
Advisor: Stephen Kmiotek

Purgatory Beer Co.’s Fiero Coconut Rum Porter: Grain Investigation
Josie Bradshaw, Marissa Leone
Advisor: Stephen Kmiotek

Investigation of the Effects of Oxygen and Other Considerations on the Shelf-Life of Craft Beer
Joseph Bosco, Jacob Pickett, Zayla Schaeffer, Samantha Smith
Advisor: Stephen Kmiotek

A Chemical Analysis of Flavor Differences in Porter
Joseph Crognaile, Tyler Donovan, Shane O’Dell
Advisor: Stephen Kmiotek

Kinetics of Low Conversion of Ethanol
Kyle Anthony Werra
Advisor: Michael Timko

Char for Water Purification
Josue Canales
Advisor: Michael Timko

Beer: The Key to Hoppiness
John Bauer, Caroline Flynn, Michelle Gencorelli, Kelly Martin, Hendrick Suwirjo
Advisor: Stephen Kmiotek

Investigation of Yeast Selection and Pitching Rate for the Fiero Coconut Rum Porter
McKenna Dunn, Keely Heyer, Matthew Milliken, Taylor Thompson
Advisor: Stephen Kmiotek

Anti-Migration Biliary Stent
Mary Davis, Jennifer Mague, Stephanie Smieszek, Melissa Wojnowski
Advisors: Stephen Kmiotek, Zoe Reidinger (BME)
Apple Yeast Investigation
Alden Graham
Advisor: Eric Young

Investigation of Gas Transport Phenomena in Gas Diffusion Layers of Proton Exchange Membrane Fuel Cells
Laura Auerbach, Deanna Poirier
Advisor: Stephen Kmiotek

Presenting in Department Other Than Chemical Engineering

Designing a Total Organic Fluorine Test Using NMR Analysis: Determining Concentrations of Per-ans Poly-Fluorinated Alkyl Substances (PFAS) in Water Samples
Ashley Choi, Dylan Muise, Zachary Weiland
Advisors: Nikolaos Kazantzis, Stephen Kmiotek, John Bergendahl (CEE)

Expanding Operations for Battery Steele Brewing
Carrie Pozaic, Cassidy Sequin, Kathleen Sheehy
Advisors: Stephen Kmiotek, Sharon Johnson (IE)

Controlling Bil3 Crystal Orientation Using Close-Space Sublimation for Solar Cell Application
James McRae, Emily Molstad, Risbel Rivas, Emma Ruano
Advisor: Pratap Rao (ME)

Chemistry and Biochemistry

POSTER SESSION, 9:30 to 11:30am
Rubin Campus Center, Odeum

Transcription Factor Up-regulation by High-Fat Diet-Induced Fatty Liver in Mice
Arman Atoofi
Advisors: Suzanne Scarlata, Joae Wu (UMMHC)

Phosphorylation of the Intracellular Loop of hZIP4 via the ERK2 and JNK2 Pathways
Aylin Padir
Advisor: Elizabeth Bafaro

In vitro Efficacy of Artemisia annua Dried Leaf Extracts Against Candida sp.
Claire Dickson-Burke, Olivia Gray
Advisors: Pamela Weathers, Arne Gericke

Expansion of the Cytochrome P450 Inhibition Assay
Emily Leclerc
Advisor: Destin Heilman
Sponsor: Sanofi Genzyme

Synthesis and Exploration of Tetra-Substituted Porphyrins for Use in a Single-Molecule Organic Solar Cell
Emma Travassos
Advisor: Ronald Grimm

Evaluating Sunscreen Actives and Their Derivatives as Potential Sensitizers in DSSC
Shaun McCoy, Erika Stark
Advisor: Drew Brodeur

Interactions Between Phospholipase Cβ and Cyclin-dependent Kinase 18 Contribute to the Neuropathogenesis of Alzheimer’s Disease
Kate Romero
Advisor: Suzanne Scarlata

Mapping the Domain Structure of Ribonuclease E in Mycobacterium smegmatis
Oscar Lee
Advisors: Scarlet Shell (BBT) and José Argüello

Analysis of Type 1 Diabetes through the I-Ag7 MHC Class II Molecule in the Non-Obese Diabetic Mouse Model
Sarah Payne
Advisor: Destin Heilman
Sponsor: UMMS

Structural and Spatial Regulation of Arl8:MyosinXI Interactions in Physcomitrella polarized Tip Growth
Stephen Foley
Advisors: Mary Munson, Luis Vidali (BBT)
Sponsor: National Science Foundation

IQGAP1 Scaffolds EGFR Interactions with Downstream Kinases
Samantha Lindberg
Advisors: Siddartha Yerramilli, Arne Gericke

Encapsulation of Lidocaine into Zein Nanofibers
Xuejun Wang
Advisor: Arne Gericke
Sponsor: Zurich University of Applied Sciences

Autoimmune Antibodies in Multiple Sclerosis
Erica Davis
Advisor: Destin Heilman
Sponsor: Rachel Gerstein (UMMS)
Examining Novel Combination Therapies for Pancreatic Cancer Treatment
Michelle Kerns
Advisors: Carissa Olsen and Brian Lewis (UMMS)
Sponsor: UMass Medical School

Low-Temperature Tissue Preservation
Kristen Dettloff, Alicia Howell-Munson, John Schwamb, Alessandra Torres
Advisors: Destin Heilman, Marsha Rolle (BME), Elizabeth Ryder (BBT)

Modification of Back-Surface Contacts to Antimony Sulfide Active Layers Using Carrier-Selective Thionated Perylene Derivatives for Improved Photovoltaic Performance
Curtis Doiron
Advisor: Ron Grimm

Civil and Environmental Engineering

POSTER SESSIONS, 1:15 to 3:30pm

Kaven Hall, 1st Floor Hallway

53 Wachusett Street Design
John Bonina, Matthew Rabasco, James Rios
Advisor: Leonard Albano

A Construction Project Management Analysis of Foisie Innovation Studio
Thomas McCarthy, Anis Medjahed, Alexander Palermo
Advisor: Guillermo Salazar

Acid Rock Drainage/Metal Leaching at Cooledge Brook: Feasibility of Alternative Remedial and Treatment Approaches
Jessica Locke, Rachel Stickles
Advisor: John Bergendahl
Sponsor: Massachusetts Department of Environmental Protection (MassDEP)

Advanced Fire-Resistant Cementitious Material
Katherine Baker
Advisor: Nima Rahbar

An Analysis of Water Quality Issues in Charlton, Mass., and Recommendations for Management and Remediation of Surface Water Bodies
Katelyn Burke, Morgan DeAngelis, Shannon Ring
Advisor: Jeanine Dudle
Sponsor: Charlton Conservation Commission

Assessing and Reducing the Impacts of Flooding on Transportation in the City of Chelsea, Massachusetts
Megan Concannon, Austin Fabbo, Francesca Ferrero, Luke Fronhofer, Sarah Sanchez
Advisors: Paul Mathisen, Mingjiang Tao
Sponsor: City of Chelsea

Consideration of an Exterior Water Spray System for the Protection of Residential Structures from the Impingement of Firebrands During a Wildfire Event
Shannon Alvarez, Mitchell Pastizzo (ME)
Advisors: Milosh Puchovsky (FPE), Albert Simeoni (FPE)

Improving Biosolids Drying with Ultrasonic Technology
Carley Dykstra, Remington Gaetjens
Advisor: John Bergendahl

Park Avenue Redesign
Peter Carosa, Colin Claus, Kimberly Guthrie
Advisors: Leonard Albano, Suzanne LePage
Sponsor: Stantec Consulting Services

Structural Improvement Design for Northern Strand Community Trail Bridge Over Saugus River
Sean Burke, Marlies de Jong, Benjamin Leveilee
Advisors: Leonard Albano, Suzanne LePage
Sponsor: Stantec Consulting Services

Pedestrian Bridge in Institute Park Using Sandwich Structured Composite
Alisa daSilva, Zebadiah Yap-Chung
Advisor: Leonard Albano

Pavement Management Applications in Central Massachusetts
Luca Cerasani, Sam Malafronte, Connor Sakowich
Advisor: Suzanne LePage
Sponsors: Rutland, Mass. and Woodlands Village

Kaven Hall, 2nd Floor Hallway

PFAS Characterization and Quantitation Using NMR
Ashley Choi (CHE), Dylan Muise (CHE), Zachary Weiland (CHE)
Advisors: John Bergendahl, NikoIas Kazantzis (CHE), Stephen Kmiotek (CHE)

Redesign of Salisbury Estates
Zachary Abbott, Mark DellaCroce, Dylan Felty, Tyler Kornacki
Advisor: Leonard Albano
Stormwater Management and Site Redevelopment of Memorial Beach
Emily Cafarelli, Joseph Genga, Davianna Vasconcelos
Advisor: Suzanne LePage
Sponsor: Town of Webster, Mass.

Sustainable Building Materials
Peter Aliogo (CE/ME), Alexander Avakian (ME), Talon Boie (ME), Chisom Okafor (ME), Daniel Venkitachalam (ME)
Advisors: Aaron Sakulich, Wole Soboyejo (ME)

Understanding the Effects of Moisture on Hot Mix Asphalt (HMA)
Austen Crawford
Advisor: Rajib Mallick

Universidad Tecnológica de Panamá: Baseline Sustainability Study and Water Management Systems
Abigail Ismail (CE/IGS), Jason Morgan, Sabrina Napoli, Ana Restrepo
Advisors: Tahar El-Korchi, Aaron Sakulich
Sponsors: Universidad Tecnológica de Panamá

Wind Load Design of a Triangular Shaped Building Using Finite Element Analysis
Khart Win Htet
Advisor: Leonard Albano

WPI Gateway II Photonics Lab Renovation: Design and Construction Process Analysis Using 5-D Building Information Modeling (BIM)
James Curtin, Constantine Galanis, Shea Mooney
Advisor: Guillermo Salazar

WPI Replacement to Kaven Hall: Structural Design
Laurence Cafaro, Nicholas Day, James Loring, Eric Schroeder
Advisor: Leonard Albano

Denitrification using Cyanobacterial-Algal Mats with Sodium Bicarbonate
Elisha Musgraves
Advisors: John Bergendahl, Isa Bar-On (ME)

Quantifying the Pollutant Removal Effectiveness of Best Management Practices in Urban Watersheds
Lucas Acaba, Virginia Adams, Stephen Balcewicz, Keeghan O’Leary, Kimberly Stanway
Advisors: Paul Mathisen, Harold Walker
Sponsor: Nitsch Engineering

Rare Earth Elements and their Behavior During Water Treatment in Nancy, France
Matthew Biondi
Advisors: Stephen Kmiotek, Marie-Noelle Pons
Sponsor: ENISC

Kaven Hall, Room 204

Solar Decathlon Africa: Mechanical Design
Edward Andrews, Ermina Damlamayan (CE/ME), Nathan Rogers
Advisors: Tahar El-Korchi, Steven Van Dessel

Structural Design for Oculus: Solar Decathlon Africa 2019
Sara Cardona, Mary Sheehan (CE/FPE), Alana Sher
Advisors: Tahar El-Korchi, Steven Van Dessel

Solar Decathlon Africa: Building Envelope Design
Anqi (Angel) Cao, Julia Karg, Alyssa Konisko
Advisors: Tahar El-Korchi, Steven Van Dessel

Integration of Food, Energy, and Water Systems in Affordable Housing
Nicole Collucci, Yasmeen Logan, Shealyn Musumeci, Christina Skavicus
Advisors: Leonard Albano, Soroush Farzin-Moghadam
Sponsor: Worcester Common Ground

Resurgence Tower—eVolo Skyscraper Competition
Michael Brady, Antoine Harris, Emily Mowatt, Caitlyn Peterson
Advisors: Leonard Albano, Soroush Farzin-Moghadam

Computer Science

POSTER SESSION, 10:00am to Noon
Fuller Labs, 3rd Floor Hallway and Classrooms

Diagnosing Robotic Swarms (Dr. Swarm)
Josiah Boucher, Jerry Brown, Erika Snow, Alexandra Wheeler
Advisors: Carlo Pinciroli, Lane Harrison

Fraud Detection with ML
Fabio Borges, Adam Camilli, Alazar Genene, James Kenney, Lucas Sacherer
Advisor: Elke Rundensteiner
Sponsor: ACI Worldwide

Vocaodoru—Rhythm Gaming and Artificial Cinematography in Virtual Reality
David Giangrave, Aidan O’Keefe
Advisors: Jennifer deWinter (IMGD), Gillian Smith

Sponsor: ENISC
Deep Learning for Data Privacy Classification
Griffin Bishop, Leo Grande,
Sam Pridotkas, Harry Sadoyan
Advisors: Randy Paffenroth (MA),
Stephan Sturm (MA)
Sponsor: Aristo Consulting
Project Center: Zurich

Robot Tour Guide
Henry Dunphy, Zoraver Kang, William Mosby
Advisors: Greg Fischer, Jing Xiao
Sponsor: AVA Robotics

Bookstand
Stephen Andrews, John Bieber, Ted Bieber
Advisors: Michael Ciaraldi, Joshua Cuneo

Gojin: The Five Gods, A Location-Based Mobile Game for Tourism
Natalie Bloniarz, Daniel Chao, Kai Lun Liu
Advisor: Gillian Smith
Sponsor: Ritsumeikan University
Project Center: Japan

Yokai no Kogeki
Jason Abel, Adam Moran, Will Suriner
Advisor: Gillian Smith
Sponsor: Osaka University, Takemura Labs
Project Center: Japan

Machine Learning for Mental Health Detection
Jerry Assan, Maurice Flannery, Yufei Gao,
Adonay Resom, Yuxin Wu
Advisor: Elke Rundensteiner

Ben-tomo!
Sean Briggs, David Tang, Jimmy Tran
Advisors: Jennifer DeWinter (IMGD),
Gillian Smith
Project Center: Osaka, Japan

Deep Learning Method for Social Networks
James Corse, Manuel Gonsalves, Daniel McKay
Advisor: Xiangnan Kong

Massachusetts Sober Housing Mobile Application
Jack Charbonneau, Alex Hard, Kyle Savell,
Tom White, Joan Wong
Advisor: Wilson Wong
Sponsor: MA Alliance for Sober Housing

First-Year Hub
Anthony Gringeri, Liana Nguyen,
Amanda Pennie, Sylvia van der Weide
Advisors: Joseph Beck, Robert Traver (UGS)

Washburn Shops Lab Management System
Sam Baumgarten
Advisor: Michael Ciaraldi

LiDAR Collision Detection
Krysta Murdy
Advisors: Hugh Lauer,
Alexander Wyglinski (ECE)

Song Recommendation for Automatic Playlist Continuation
Quinn Averill, Jackson Baker,
Samuel Coache, Steven McAteer
Advisors: Xiangnan Kong, Kyumin Lee

Building a Task Blacklist for Online Social Systems
Trang Ha, Quyen Hoang
Advisor: Kyumin Lee

Influence of End User Activity on Firewalling Decisions
Ryan Wittenberg
Advisors: Lane Harrison, Craig Shue

Detonicon - A Networked Game Utilizing AI to Study the Effects of Latency Compensation
Hung Hong, Antony Qin
Advisor: Mark Claypool

Coq for Formal Verification
Spyridon Antonatos, Matthew McDonald,
Dylan Richardson, Joseph St. Pierre
Advisor: Dan Dougherty

Maximizing the Effect of Redundancy on Fault Diversification Through Core Layout
Alec Kohlhoff, Kyle Scaplen
Advisors: Andrew Clark (ECE), Robert Walls
Sponsor: The MITRE Corporation

Host-Based Traffic Engineering: Network Endpoints with the Capabilities of SDN-Enabled Switches
Jeffrey Estrada, Remy Kaldawy, Julian Lanson
Advisor: Craig Shue

Performance of TCP BBR and CUBIC at the Network Bottleneck
Saahil Claypool
Advisor: Craig Wills

ReVisIt: A Tool for the Passive Evaluation of Interactive Visualizations
Madeline Burke, John Dyer, Luke Gardner
Advisor: Lane Harrison
**POSTER SESSION, 1:00 to 3:00pm**
**Fuller Labs, 3rd Floor Hallway and Classrooms**

**HerdHealth**
Adam Bettigole, Tessa Garbely, Taehyun Kim, Jessie Ying
Advisor: Emmanuel Agu

**ArchaeoWizards**
Evan Frost, Sam Winter
Advisors: Farley Chery (IMGD), Charles Roberts, Joshua Rosenstock (IMGD)

**Face Id in Classroom Videos**
Zarni Phyo
Advisor: Jacob Whitehill

**Privacy-Preserving Annotation of Face Images through Attribute-Preserving Face Synthesis**
Sola Shirai
Advisor: Jacob Whitehill

**SNAP MQP**
Yosuke Nakamura, Jack Palmstrom
Advisor: Michael Ciaraldi

**Smart Door Lock**
Aleksander Ibro, Augusto Wong, Mario Zyla
Advisors: Michael Ciaraldi, Maqsood Mughal (ECE)

**Investigating the Tradeoffs of GPUs for Parallel Processes**
Freise Jacob
Advisor: Guo Tian

**Personality AI Development**
Kien Nhan, Jiuchuan Wang
Advisor: Gillian Smith
Project Center: Japan

**PMKS+: Migrating a Microsoft Silverlight Application to a Cross-Browser Platform**
Praneeth Appikatla, Griffin Cecil, Michael Taylor, Dimitrios Tsiakmakis
Advisors: David Brown, Pradeep Radhakrishnan (ME)

**The Design and Implementation of Looping Constructs for Robots**
Rachel Hahn, Ian Johnson, Benjamin Mattiuzzi
Advisor: Michael Gennert (RBE)

**Autograder for CS2303**
Chang Liu, Tim Whitworth
Advisor: Hugh Lauer

**Neural Neural Network**
Ryan Racine, Karsten Roberts, Isaac Woods
Advisors: Tian Guo, Xiangnan Kong

**Music Info Retrieval and Pain Management**
Jesse Gaulin, Andrew Nemeth, Liam Yoo
Advisors: Vincent Manzo (HUA), Wilson Wong

**Graph-Based Sports Rankings**
Chaiwat Ekkaewnumchaj, Connor McNamara, Kyle Richards, Abigail Roane
Advisors: Gábor Sárközy, Craig Will

**ConText FAERS Interface**
Jacob Kaplan, Petern Nolan, Logan Romero
Advisor: Elke Rundensteiner

**Metric-Based Classification of Graph Vertices**
Daniel Kim, John Pugmire
Advisors: Padraig O Cathain (MA), Robert Walls

**Performing Binary Classification of Contest Profitability for DraftKings**
Sean Brady, Jackson Perry, Jon Venne, Saul Woolf
Advisors: Rick Brown (ECE), Randy Paffenroth (MA)
Sponsor: DraftKings

**CityView+: Enhanced Urban Data Visualization**
Frank Campanelli, Zhung Moo Feng, Tarek Safa
Advisor: Yanhua Li

**Autonomous Scale Car Using Computer Vision and Neural Networks**
Mitchell Curbelo, Ryan Darnely, Ava Karat, Krishna Madhurkar, Dylan McKillip, Ethan Schutzman, Christian Scillitoe
Advisors: Pradeep Radhakrishnan (ME, RBE), Kaveh Pahlavan (ECE, CS)

**Designing an Authentication System for Augmented Reality Devices**
Rushdi Abulhijja, Meghana Bhatia, Nikolaos Kalampalikis, Alejandro Soler
Advisor: Krishna Venkatasubramanian

**NASA RMC 2019**
Anh Dao, Luis Delatorre
Advisors: Michael Ciaraldi, Kenneth Stafford (ME/RBE)

**Correcting Errors and Adding Features to PMKS**
Albert Bek, Mitchell Farren, Alexander Galvan, David Richardson, Zhihao Xie
Advisors: David Brown, Pradeep Radhakrishnan

**Piano-Playing Robotic Arm**
Thomas Maloney, Anthony Topper
Advisors: Scott Barton, Xiangnan Kong

**Generating Solitaire Games**
Drew Ciccarelli, Ian MacGregor, Simon Redding
Advisor: George Heineman
Electrical and Computer Engineering

Atwater Kent Labs, Room 219

10:00am
Electrify Atwater Kent
Juan Caraballo, Shannon McCormack,
Jeffrey Wagner
Advisor: John McNeill

10:15am
Fall Detection and Posture Monitoring System
Yifei Jin, Syed Ayaz Naem, Holly Shumway
Advisors: Ulkuhan Guler, John McNeill

10:30am
An Arithmetic Library for Fully Homomorphic Encryption
Robert Chase, Keith Colbert,
Dominic Fusco, Austin LaBastie
Advisors: William Martin (MS), Berk Sunar

10:45am
Performing Binary Classification of Contest Profitability for Draftkings
Sean Brady, Jackson Perry, Jon Venne, Saul Woolf
Advisors: Donald Brown, Randy Paffenroth (MA)
Sponsor: Draftkings

11:00am
OSIMS—Online System Integrity Monitoring System
Michael Tasellari, Yuchang Zhang
Advisor: Gene Bogdanov

11:30am
Adversary UAV Localization with Software Defined Radio
Ian Gelman, Abdul Hassan, John Loftus
Advisor: Kaveh Pahlavan

11:45am
Comparing the Accuracy and Precision of Bluetooth Low-Energy and Ultra-Wideband Technology for In-Room Positioning
Danielle Kennaon, Son Nguyen, Myo Thein
Advisor: Kaveh Pahlavan

12:00pm
KINISI
Gabriel Entov, Lanhao Mao, Cassandra Pepicelli,
Jonathan Tai, Samuel White, Cooper Wolanin
Advisors: Hugh Lauer (CS), Alexander Wyglinski

12:15pm
The Detection and Parametric Estimation of Fast-moving Objects for Smart Home Plate Application
Theodore MacLeod, Dominic Palermo, Michael Panicci
Advisor: Donald Brown

1:00pm
Blindsight
Aatreya Chakravarti, Alan Fernandez, Yeggi Lee
Advisor: Stephen Bitar, Yitzhak Mendelson (BME)

1:15pm
MGH Biomedical Imaging Tools
Ioannis Alexiou
Advisors: Sergey Makarov, William Michelson

1:30pm
Authentication for AR Devices
Alejandro Soler Gayoso
Advisor: Andrew Clark

Atwater Kent Labs, Room 233

10:00am
Wind Speed Surveying Device
Peter Emidy, Christopher Jarrett,
Nicholas Pandolfi, Jonathan Redus
Advisor: Yousef Mahmoud

10:15am
Smart 2-Stage Solar Microinverter
Christian Elzey, Michael Kane, Marmik Patel,
Justin Silkey, Michael Truong
Advisor: Yousef Mahmoud

10:30am
Tidal Energy Surveying
Swan Htet, Zheng Liang, Nicholas Nugent
Advisor: Stephen Bitar, Yousef Mahmoud

10:45am
Rehabilitative Arm Exoskeleton
Eric Carkin, Parker Grant, Bryan Therrien
Advisor: Stephen Bitar, Marko Popovic (RBE), Joe Stobile (ME)

11:15am
Object Manipulation and Control with a Robotic Hand
Colin Buckley, Bhon Bunnag,
Apiwat Ditthapron, Rebecca Miles
Advisors: Stephen Bitar, Zhi Li (ME)
11:30am
Wireless Electrocardiogram & Pulse Oximeter
Victoria Crowley, Stephanie Huang, Kiriaki Rajotte, William Wartman
Advisors: Edward Clancy, Yitzhak Mendelson (BME)

11:45am
Geolocation Using Smartphone Sensors
Ryan Darnley, Nathaniel Peura, Justin Seeley
Advisor: Edward Clancy

12:00pm
Versatile Solar-powered Charging Platform with Integral Wireless Charging Capability
Nicolas Fabbrini, John Kirwan, William Kirwan, John O’Leary
Advisor: Reinhold Ludwig

12:15pm
Thin Film Solar Cell
Matthew Breidenbach, Nicole Candanedo, Abraham Cano Ventura
Advisor: Maqsood Mughal

1:00pm
AR Assisted Cooking
Mona Eloka, Benjamin Hylak
Advisors: Maqsood Mughal, Gillian Smith (CS), Erin Solovey (CS)

1:15pm
CERBERUS
Kaan Emir, Hannah Olshansky
Advisors: Kenneth Stafford (RBE), Alexander Wyglinski

1:30pm
IoT Spectrum Monitoring and Localization
Lauren Getz, Katherine Smith, William Schwartz
Advisors: Stephen Bitar, Michael Ciaraaldi (CS), Alexander Wyglinski

1:45pm
Solar Sanitation Device
John Cerce, Ryan Kent
Advisor: Sergey Makarov

1:00pm
Humanities and Arts
Higgins House, Library

12:30 – 12:50pm: China Hub
China Project Award winners

Conceptual Redesign of Hangzhou DAC Biotech’s English Website
Dominic Cascino, Paulo Chow, Jose Li, Tsuiyee Ng
Advisors: Wen-Hua Du, Bob Kinicki (CS), IQP MQP 1st Prize

The Applicability of Carbon Pricing in Hong Kong
Alexandra Auteri, Kristen Chan, Pavee Phongsopa, Eda Zhou
Advisors: Alexander Smith (SSPS), Gu Wang (Math)
IQP MQP 2nd Prize

An Investigation of Cultural Infrastructure in Hangzhou, China to Improve the Quality of Life in Xiasha
Lorenzo Castoldi, Jeremy Jacobs, Alexandra Miller, Caroline Murphy
Advisors: Wen-Hua Du, Bob Kinicki (CS), IQP MQP Honorable Mention

A Clash of Cultures: Why Uber Failed in China
Griffin Bishop
Advisor: Jennifer Rudolph
HUA Inquiry Seminar 1st Place (tie)

The Nationalism Behind China’s Space Aspirations
Samuel Goldman
Advisor: Jennifer Rudolph
HUA Inquiry Seminar 1st Place (tie)

12:50pm
Connecting the Dots: Exploring Social Stigma Through Theatre
Holly Gagnon
Advisor: Despoina Giapoudizi

1:10pm
Historical Assessment of the Transformation of Kibbutzim of the Southern Arava
Morgan Reisinger
Advisor: Bland Addison, Peter Hansen

1:20pm
Lionfish Bot 2.0
Thomas Ralph
Advisor: Peter Hansen
Investigating the Social and Scientific Impact of Biology MQPs
Claire Dickson-Burke
Advisor: Patricia Stapleton (SSPS)

Piano Playing Robotic Arm
Thomas Maloney, Anthony Topper
Advisor: Scott Barton, Xiangnan Kong (CS)

Interactive Media and Game Development
Fuller Labs, Lower Perreault

Reality Wizards
Evan Frost, Samuel Winter
Advisors: Farley Chery, Charlie Roberts, Joshua Rosenstock

Ellie’s Spirit
Karl Rosenfeld, Laura Sawin, Abdah St. Fleur
Advisors: Farley Chery, Charlie Roberts, Joshua Rosenstock

World Wizards
Nathaniel Carter
Advisor: Jeffrey Kesselman

Ben-tomo!
Sean Briggs, David Tang, Jimmy Tran
Advisors: Jennifer deWinter, Gillian Smith
Sponsor: Osaka University, Japan

Babies and Basilisks
Paige Cox, Aaron Graham, Hannah Jauris, Vincent Miller, Edward Shaddock
Advisors: Mark Claypool, Brian Moriarty, Ralph Sutter

Bound
Leo Bunyean
Advisor: Gillian Smith

World Wizards
Nathaniel Carter
Advisor: Jeffrey Kesselman

Gojin: The Five Gods
Natalie Bloniarz, Daniel Chao, Kailun Liu
Advisors: Jennifer deWinter, Gillian Smith
Sponsor: Ritsumeikan University, Japan

Game Engine IDE
Bailey Sostek
Advisor: Brian Moriarty

Dragonfly Latency
Hung Hong, Antony Quin
Advisor: Mark Claypool

Sigurd Fafnirs-Bane
Grant Frederick
Advisor: Edward Gutierrez, Brian Moriarty

Mathematical Sciences
Higgins Labs, Room 218

Particle Resuspension: Experiments, Modeling, and Simulation
Paula Sarrion Silvestre
Advisors: Zhongqiang Zhang, Jian Zou, David Medich (PH)

Quantum Walks on Graphs
Luke Candler Brown
Advisor: William J. Martin

Applications of Semidefinite Programming
Caroline Johnston
Advisor: William Martin

Explorations of Sequence Risk
John Cohen, Jeremy John, Jacob Steinberg
Advisors: Jon Abraham, Barry Posterro
10:20am
Game Show Math
Marshall Patrolia, Corey O’Malley
Advisors: Jon Abraham, Barry Posterro

11:00am
Nanoionic Particle Composite Homogenization
Sean Fraser
Advisor: Joseph Fehribach

11:20am
Performing Binary Classification of Contest Profitability for DraftKings
Sean Brady, Jackson Perry, Jonathan Venne, Saul Woolf
Advisors: Randy Paffenroth (MA/CS), Rick Brown (ECE), Jeanine Skorinko (PSY)
Sponsor: DraftKings

11:40pm
Dimensions of Matrix Subalgebras
Phillip Heikoop
Advisor: Padraig O Cathain

12:00pm
Metric-based Classification of Graphs
Presenters: Daniel Jaewoo Kim, John Pugmire
Advisors: Padraig O Cathain, Robert Walls (CS)

12:20pm
Supplier Onboarding and Vendor Digital Identity for State Street Corporation Global Services’ Procurement Operation
Presenters: Mikala Dunbar, Lisandra Lao
Advisors: Marcel Blais, Kevin Sweeney (BUS), Stephan Sturm, Michael Ciaraldi (CS)
Sponsor: State Street Corporation

Mechanical Engineering

POSTER SESSION: 8:30 to 11:30am
Alden Memorial, Great Hall

Biomechanical Engineering

Functional Analysis of an Ankle-Foot Orthosis: The Intrepid Dynamic Exoskeletal Orthosis (IDEO)
Andrew Lucy
Advisor: Holly Ault

Load Absorption Device for Ice Hockey Shoulder Pads
Benjamin Aldrich, Matthew Moore, Kathryn O’Donnell, Andrea Rota
Advisors: Christopher Brown, Tiffany Butler (BME)

Preventative Care Knee Exoskeleton
Steven Franca, Ariel Goldner, Stephanie Marcucci, Matthew Schueler, Daniel Wivagg
Advisors: Loris Fichera (CS), Gregory Fischer

Investigation of UCL Tears in Baseball Pitchers
Maddie Brennan, Steven Gallagher, Benedict Kurtze, Paula Sardi
Advisors: Selcuk Guceri, Marko Popovich (PH)

Soft Ankle Exosuit for Correction of Foot Drop
Joshua Galang, Lauren Morgan-Evans, Hannah Yeung
Advisors: Selcuk Guceri, Marko Popovic (PH)

Impact Absorbing Wrist Guard for Snowboarders
Cole Godzinski Marc LaBahn, Hannah Modelski, Kyle Whittaker
Advisor: Fiona Levey

Fiber Optical Tweezers for Brain Property Measurements
Li-Yang Chiang, Matthew DeBenedictis, Qindong Zhang
Advisor: Yuxiang Liu
Sponsor: National Science Foundation

Attachable Arm Bike for Alternative Wheelchair Propulsion
Heather Bourassa, Kyle Juarez, Erin McCann, Zoe Schwartz, Caraline Wood
Advisor: Brian Savilonis

Evaluating Performance Testing Procedures for Baseball Catchers’ Helmets
Sophia Gervasio, Derek Kruzan, Walter Kwiecinski, Ryan McLaughlin
Advisor: Brian Savilonis

Design

Assistive Guitar Plucking Device and User Interface
Daniel Farnitano, Laurel Higham, Victoria Mercouris, Benjamin Shaffer
Advisors: Curtis Abel (UGS), Holly Ault
Sponsor: PAM Band

Design and Analysis of Packaging Methods at PepsiCo Frito-Lay
David Bovich, Lillian Olsen, Nathan Pietrowicz, Benjamin Seitz
Advisors: Torbjorn Bergstrom, Walter Towner Jr. (BUS), Helen Vassallo (BUS)
Sponsor: PepsiCo Frito-Lay (Anthony Stolo, Corn Packaging Supply Chain Leader)

Stylus for Fine-Motor Development
Nathan Rose, Tom Ward, Shane Whittaker
Advisor: Torbjorn Bergstrom
Design of Multi Laser System
Matthew Lund
Advisors: Mehul Bhatia, Rudra Kafle (PH)

Increasing the Throughput of 3D Printers with Automated Part Removal
Muhammad Hussain, Brian King, Chris Kirven, Brian Sayers, Benjamin Secino, Baron Strasburger
Advisors: Mehul Bhatia, Pradeep Radhakrishnan

Edge Design for Performance
Evan Bossio, Sophia Leitzman, Riley Lopez, Amanda Rodriguez
Advisor: Christopher Brown

Head Injury Prevention – Helmet
Josh Herlands, Austin Linder, Douglas Rives
Advisor: Christopher Brown

Sit Ski by Axiomatic Design
Jared Grier, Austin McCalment, David Parker, Jeffrey St. Hilaire
Advisor: Christopher Brown
Sponsor: Robert Neumeister

Ski Binding Design Suspension System for Vertical Load Transmission
Madison Healey, Matthew Newell, Kendra O’Malley, Connor O’Neill
Advisor: Christopher Brown

Correcting Errors and Adding Features to PMKS
Mitchell Farren, Alexander Galvan, Albert Nana Bek, David Richardson, Zhihao Xie
Advisors: David Brown (CS), Pradeep Radhakrishnan

Developing a Device to Place Traffic Cones
Christopher Ferreira, Holly Gagnon, Zachary Whitmore
Advisor: Eben Cobb

Human Powered Recreation Vehicle
Nolan Bell, Alexander Gallant, Michael Munroe, Katherine Schweikert
Advisor: Eben Cobb

Pool Chair Lift
Amanda Alves, David Cadilek, Daniel Corwin
Advisor: Eben Cobb

Redesigning the Posterior Pediatric Walker
Julia Decker, Ryan Foley, Kelly McMahon, Victoria Nassar
Advisor: Eben Cobb

Retractable Traction System
Kaitlyn DaSilva, Karen Mushrall, Martin Walwik
Advisor: Eben Cobb

Recreating Steam Power at WPI
Michael Cooke, Thomas Kouttron
Advisor: Robert Daniello

Design and Validation of a Novel Mission Framework for the Detumbling of Rotating Space Debris Using a Tether-Net Linkage and Momentum Wheel
Joshua Desmond, Max Luu, Timothy Stump
Advisors: Frank Dick (PH), Zhikun Hou, Carlo Pincioli (CS)

Design and Optimization of a Formula SAE Vehicle
James Chakalos, Justin Dyer, Matthew Freed, Justin Harris, James Meagher
Advisors: Mustapha Fofana, John Hall, David Planchard

Application of VR to the Engineering Design Process
Ralph Grzybek, Gregory Pelland, Maricella Ramirez
Advisor: Cosme Furlong
Sponsor: WPI Academic & Research Computing

Design, Realization, and Application of an Ultra-High-Speed Shock Tube for Middle-Ear Mechanics
Eli Frank, John Perkoski, Jacquelyn Roberge, Jessica Walsh
Advisor: Cosme Furlong
Sponsor: Massachusetts Eye and Ear and Harvard Medical School
Jeffrey Tao Cheng, John Rosowski

Design and Assembly of Acetone Distillation System
Chase Arsenault, Olivia Baranowski, Nicholas Batchelder, Tyler Costello
Advisor: Selçuk Guçeri

Design & Development of an Electric-Powered Hand Truck for In-Home Use
Azita Bakhtyari, Justin Nguyen, Ayushka Shrestha, Timothy Tetreault
Advisor: Selçuk Guçeri

Design of an Outrunner Hydrokinetic Turbine
Jillian Chu, Alexander Kim, Joseph Pagliuca
Advisor: Selçuk Guçeri

Gyroscopic Stabilization for Uniaxial Rotational Hand Tremor
David Muse, Ian Sun, Alec Wehse
Advisors: John Hall, David Planchard

3D Printing Material Analysis
Sean Cody, Peter Pham, Kyle Tyler, Jianqing Zhu
Advisor: Zhikun Hou
Train of Four Monitoring
Christopher Beauregard, Nicholas Bergstrom, Edward Crofts, Kyler Dillon, Anastasia Karapangou, Kinsey McNamara
Advisors: Kwonn Lee (BME), Ahmet Sabuncu, Jeanine Skorinko (PSY)

Design and Development of a Football Neck Support and Testing Apparatus
Zachary Bellion, Sean Gillis, Francis Lubega, Blayne Merchant, Colin Saunders
Advisor: Fiona Levey

Design of a Shoulder Pad to Reduce the Risk of Injury in Men's Lacrosse
Elianna Buckley, Juliana Cabello, Tristin Carlton, Gabriela Hoops
Advisor: Fiona Levey

SolFly: Solar Energy Tent Fly for Humanitarian Aid
Olivia Jones, Edward Noyes
Advisor: Fiona Levey

Realizing a Compact Neutron Beam Collimator for Neutron Radiography
Calvin Downey, Jessica Elder
Advisors: David Medich (PH), Richard Sisson

Designing Integrated Inputs for a Soft Robotic Mechatronic Tongue
Logan Chen
Advisor: Pradeep Radhakrishnan

Flexible Solar Cell Test Fixture
Laura Bauer, Carl Turnquist, Alexandra Wallace
Advisor: Pratap Rao

Greenhouse Redesign for Elementary Educational Needs (GREEN)
Daniel Barra, Kathleen Nugent, Daniel Ottey, Adam Peternell, Jonathan Toomey, Sean Traynor
Advisor: Ahmet Sabuncu
Sponsor: Lisa Burris, Turn Back Time Farm

Harvesting Mechanical Energy
Laura Carlson, Theresa Cloutier, Allanah Kalka-Riffel, Kishan Patel, Kevin Pawlak
Advisor: Brian Savilonis

Small-Scale Vortex Induced Vibration Wind Energy Harvesters
Frank Ciliberto, Carly Neeld, Brooke Pierce, Ethan Shipulski
Advisor: Brian Savilonis

Sustainable Building Materials
Peter Aliogo, Alexander Avakian, Talon Boie, Chisom Okafor, Daniel Venkitachalam
Advisor: Winston Soboyejo

Low-Profile Planar Home Speaker System
MacKenzie Hridel, Katherine Novak, Brent Reissman, Theodore Vangos, Katherine Williamson
Advisor: Joe Stabile
Sponsor: Bose Corporation

A Biodegradable Alternative to the Single-Use Cup
Jessica Hanley, Ryan Hermann, Tess Hudak, Rose Lewis, Peter Ross
Advisors: Walter Towner (BUS), Sarah Wodin-Schwartz

Automated Optical Inspection of MEMS Bases Cochlear Implant Hydrophones
Sarah Bachli, Libertad Escobar, Angela MacLeod, Colette Ruden
Advisor: Sarah Wodin-Schwartz
Sponsors: UniversitätsSpital Zurich and Cochlear, Ltd.

Manufacturing

3D Printing Using a PA12/NdFeB Filament
Miles Nallen, Kyle Opieken, Tyler Rauch
Advisor: Joseph Stabile
Sponsor: Kalenian Foundation

Materials

Investigating the Properties of 3D-Printed Polymer-Metal Composites Containing Surface-Modified Stainless Steel Powder Reinforcement
Joseph Calnan, Andrea Claudio-Palacios, Jack Grubbs, Richard Smith
Advisors: Germano Iannacchione (PH), Diana Lados

Buckled Battery Structures
Cesar Guerrero
Advisor: Jianyu Liang, Winston Soboyejo

Fire Helmet Redesign
William Bass, Thomas Chiudina, Max Marks
Advisor: Jianyu Liang

Controlling Bil3 Crystal Orientation Using Close-Space Sublimation for Solar Cell Application
James McRae, Emily Molstad, Risbel Rivas, Emma Ruano
Advisor: Pratap Rao

Austempering AISI 5160 Steel
Jocelyn Abdallah, Abdullah Al-Shawk
Advisor: Richard Sisson, Mei Yang

Design Flow Electrolysis Cell
Kyle Arnold, Glenndon McCormick
Advisor: Yan Wang
High Entropy Alloys
Arkady Gobernik, John Haddad, Connor Lemay
Advisor: Yu Zhong
Sponsor: Metal Processing Institute

Robotics Engineering

NASA RMC 2019
Anh Dao, Luis Delatorre
Advisors: Michael Ciaraldi (CS), Kenneth Stafford

PhleAid: Automated Phlebotomy Assistant
Gabriela Morales-Castillo, Angelina Nicolella, Carlos Pacheco, Armando Zubillaga
Advisor: Gregory Fischer

Soft Matter Manipulation
Mingqi Shuai, Michelle Zhang
Advisors: Zhi Li, Marko Popovic (PH)

Autonomous Scale Car Using Computer Vision and Neural Network
Mitchell Curbelo, Ryan Darnley, Ava Karet, Krishna Madhurkar, Dylan McKillip, Ethan Schutzman, Christian Scillitoe
Advisors: Kaveh Pahlavan (ECE), Pradeep Radhakrishnan

Developing a Modular Control Moment Gyroscope for Planetary Rover Mobility
Aidan Brawley, Stephen Burke, Fang Han, Oliver Sanderson, Jeremy Wiles
Advisor: Pradeep Radhakrishnan

Development of a Modular Animatronic Head
Matthew Dick, Owen France, Richard Hosea, Kevin Le, Rachel Lia, Patrick Meehan, Kyle Seymour
Advisor: Pradeep Radhakrishnan

Thermofluids

Low Ambient Air Source Heat Pumps Utilizing Cascade Cycles
Stephen Barthold, Brandon Cohen, Michelle Hull, Tyler Wilson
Advisors: Robert Daniello, Christopher Scarpino
Sponsor: Trane

Phase Change Energy Storage Implementing Recycled Materials
Kieran Bradley, Malachi Nelson, Jillian Onishi, Christopher Tillotson
Advisor: Selçuk Güçeri

Saving Energy and Cost During Peak Periods
Geraldine Benn, Christine Flores, Alison LaBarge
Advisor: Selçuk Güçeri

Development of an Off-Grid Solar-Powered Milk Refrigeration Solution
Brandon Abad, Michael Curtis, Kyle Havey, Peter Nash, Joseph Stapleton, Luke Xu
Advisor: Ahmet Sabuncu
Sponsor: Hunt Institute

Atmospheric Water Generation
Christopher Bolsinger, Spencer Ralphs
Advisor: Jamal Yagoobi

Physics

Olin Hall, Room 107

9:00am
Soft Matter Manipulation
Mingqi Shuai, Michelle Zhang (ME, RBE)
Advisors: Zhi Li (ME), Marko Popovic

9:15am
Time-Energy Entangled Quantum Key Distribution Without Franson Interferometry
Ben Child
Advisor: David Medich

9:30am
Fourier Transform Spectroscopy
Darien Gaudet, Hayden Savage
Advisor: Richard Quimbly

9:45am
Analysis of Am-241 Resuspension into the Atmosphere
Paula Sarrion Silvestre
Advisor: David Medich

10:00am
Design, Analysis, and Testing of an Electromagnetic Booster Separation System
Justin Tavares
Advisor: David Medich

10:15am
Photoluminescence Spectroscopy of Bismuth Triiodide, a New 2D Material for Photovoltaic Applications
Alexis Buzzell, Andrew Mendizabal
Advisor: Lyubov Titova

10:45am
Modeling and Characterization of Millimeter-wave Photodiodes for Microwave Photonic Integrated Circuits
Erin Morissette
Advisors: Douglas Petkie, Lyubov Titova
Sponsor: MIT Lincoln Laboratory
11:00am
Constructing Two Dimensional Theories of Gravity for Schwarzschild, Reissner-Nordstrom, and Non-Extremal Kerr Black Holes
Nathaniel Mione, Bryannah Voydatch
Advisors: Padmanabhan Aravind, Leo Rodriguez, Shanshan Rodriguez (Grinnell College)

11:15am
Analysis of Millimeter Wave FMCW Radar System for Ranging and Sensing Applications
Jacob Bouchard
Advisor: Douglas Petkie

11:30am
Second Generation Ethanol Production Using Subcritical Water Hydrolysis on Sugarcane Bagasse and Straw
Kyle Hanlon (CHE), Marco Interlandi
Advisors: Germano Iannacchione, Michael Timko (CHE)

11:45am
Stochastic Simulations of Far-from-Equilibrium Thermodynamics
Nicholas Mears
Advisor: Germano Iannacchione

12:00pm
Adhesion Analysis of Fluorescent Nanoparticles with TIRF Microscopy
Taylor Trottier
Advisor: Nancy Burnham

Professional Writing

POSTER SESSION
11:30am to 12:30pm
Higgins House, Great Hall

Analyzing Faculty and Student Perceptions of Writing in the BME Curriculum
Kelly Borden, Sydney Hurley, Rachel Peterson
Advisor: Ryan Madan

Improving Safety in School Zones for Students in the Main South Neighborhood of Worcester, Massachusetts
Sarah Brown
Advisors: Joseph Cullon, Brenton Faber, Suzanne LePage (EVE)

Evaluating the Variability of ED Visits for Intellectually and Developmentally Disabled Patients Compared to National Averages
Brianna Burke
Advisor: Brenton Faber

“Formal and Meaningless” or “Impactful”: Citizen Participation in the Downtown Urban Revitalization Plan
Ryan Cudemus-Brunoli
Advisor: Jennifer deWinter

The Challenges and Importance of Standard Operating Procedures in Small Businesses: A Case Study with Purgatory Beer Company
Caroline Flynn
Advisor: Ryan Madan

Potential Diagnostic Markers Associated with Parkinson’s Disease
Stephen Foley
Advisor: Brenton Faber

Breast Cancer Co-morbidities in Rural Demographics
Madeline Manfra-Levitt
Advisor: Brenton Faber

An Examination of the Technical Writing Genre Through a 3D Printer Manual Case Study
Miles Nallen
Advisors: Kevin Lewis, Ryan Madan

Public Perceptions of Second Generation Biofuels
Carla Romo
Advisor: Lorraine Higgins

Identity Formation in Paramedic Education
Maxwell Studley
Advisor: Brenton Faber

Robotics Engineering

Foisie Innovation Studio, 2nd Floor

8:15am
Engineered Skeletal Muscle
Michael Antonelli, Lyra Huynh, Deborah Kalambayi, Lara Schmoyer, Nicholas Seagrave
Advisors: Raymond Page (BME), Marko Popovic

8:30am
Wolfgang: An Autonomous Mobile Robot for Outdoor Navigation
Aidan Cookson, Mark Landergan, Sean O’Neil
Advisors: William Michalson, Xinming Huang (ECE)
8:45am
Modular Electric Skateboard (MESB)
Nicholas Fajardo, Philip Konyeaso, Zane Weissman
Advisors: Susan Jarvis (ECE), Craig Putnam

9:00am
Telenursing RoboPuppet
Zachary Caplin, Ryan Kennedy, Grant Zahorsky
Advisor: Zhi (Jane) Li

9:15am
Sailbot 2018-2019
Sydney Fisher, Sierra Palmer, Kellen Randall
Advisors: William Michalsen, Kenneth Stafford

9:45am
Agriculture SWARM
Anqi Shen, John Stegeman
Advisor: Michael Ciaramaldi, Nicholas Bertozzi

10:00am
Soft Matter Manipulation
Mingqi Shuai, Michelle Zhang
Advisors: Zhi (Jane) Li, Marko Popovic

10:15am
A.I. LEGO Sorter
Peter Donaldson, David Jin, Andrew Schueler
Advisors: Brad Miller, Craig Putnam

10:30am
Lionfish Bot 2.0
Alexander Antaya, Katharine Conroy, Eric Peterson, Thomas Ralph
Advisors: Susan Jarvis (ECE), Brad Miller, Craig Putnam
Sponsor: Robots in Service of the Environment

10:45am
Oddisy Drone Dispatch System
Noah Hillman, Nick Sorensen, Marek Travnikar, Steven Viola
Advisors: Nick Bertozzi, Reinhold Ludwig (ECE), Brad Miller, Carlo Pinciroli

11:15am
Swarm Construction with Intelligent Scaffolding
Albert Enyedy, Felix Sanchez
Advisor: Carlo Pinciroli

11:30am
Walking Quadruped
Nicole Franco, Nicoli Liedtke, Danny Lu
Advisors: Gregory Fischer, William Michalsen, Craig Putnam

11:45am
Autonomous Scale Car Using Computer Vision and Neural Networks
Mitchell Curbelo, Ryan Darnley, Ava Karet, Krishna Madhurkar, Dylan McKillip, Ethan Schutzman, Christian Scillitoe
Advisors: Kaveh Pahlavan (ECE), Pradeep Radhakrishnan

12:00pm
Autonomous RC Car Platform
Jason Ashton, Sean Hunt, Myles Spencer
Advisor: Jie Fu, Michael Gennert

12:15pm
SmallKat
Keion Bisland, Xavier Little, Alex Tacescu
Advisors: Nicholas Bertozzi, Loris Fichera, Gregory Fischer, Brad Miller

1:00pm
K.O.L.T.: Known Object Localization and Tracking
Nathan Rosenberg
Advisor: William Michalsen

1:15pm
Robot Tour Guide
Henry Dunphy, Zoraver Kang, William Mosby
Advisors: Gregory Fischer, Jing Xiao
Sponsor: AVA Robotics

1:30pm
Object Manipulation and Control with Robotic Hand
Colin Buckley, Bhon Bunnag, Apiwat Ditthapron, Rebecca Miles
Advisors: Stephen Bitar (ECE), Loris Fichera, Zhi (Jane) Li

1:45pm
Kinisi
Gabriel Entov, Lanhao Mao, Cassandra Pepicelli, Jonathan Tai, Samuel White, Cooper Wolanin
Advisors: Hugh Lauer (CS), Alexander Wyglinski (ECE)
Sponsors: SICK Sensor Intelligence, Pico Technology, Mitsubishi Electric Research Lab, WPI Society of Automotive Engineers
2:00pm
Diagnosing Robotic Swarms (Dr. Swarm)
Josiah Boucher, Jerry Brown, Erika Snow, Alexander Wheeler
Advisors: Carlo Pinciroli, Lane Harrison (CS)

2:30pm
Thermal Infrared Endoscope
Matthew Collins, James Kradjian, Ryan St. Hilaire, Chenggu Wang, Wentao Yuan
Advisors: Loris Fichera, Gregory Fischer

2:45pm
Autonomous Landmine Detection Rover
Dillon Arnold, Nicholas Lanotte, Benjamin Wagner, Dan Wensley
Advisors: Nick Bertozzi, Susan Jarvis (ECE), Craig Putnam

3:00pm
Firefighting Robot
Eva Barinelli, Jacob Berman-Jolton, Gavin MacNeal, Karina Naras, Yil Verdeja
Advisors: William Michelson, Carlo Pinciroli, Sarah Wodin-Schwartz (ME)

3:15pm
Increasing the Throughput of 3D Printers with Automated Part Removal
Brian King, Chris Kirven, Hussain Muhammad, Brian Sayers, Benjamin Secino, Baron Strasburger
Advisors: Mehul Bhatia (ME), Pradeep Radhakrishnan

3:30pm
Super-elastic Continuum Robot for Endoscopic Articulation and Manipulation (SCREAM)
Zachary Boyer, Cory Brolliar, Benjamin Mart, Kevin O’Brien
Advisors: Loris Fichera, Gregory Fischer, Kenneth Stafford

4:00pm
Automatic Vehicle Recharging Station
Matthew Fortmeyer, Nikolas Gamarra, Ryan O’Brien, Jacob Remz
Advisors: Jie Fu, Craig Putnam

4:15pm
Developing a Modular Control Moment Gyroscope for Planetary Rover Mobility
Aidan Brawley, Stephen Burke, Fang Han, Oliver Sanderson, Jeremy Wiles
Advisor: Pradeep Radhakrishnan

4:30pm
Development of a Modular Animatronic Head
Matthew Dick, Owen France, Richard Hosea, Kevin Le, Rachel Lia, Patrick Meehan, Kyle Seymour
Advisor: Pradeep Radhakrishnan

4:45pm
Rehabilitative Arm Exoskeleton
Eric Carkin, Parker Grant, Bryan Therrien
Advisors: Stephen Bitar (ECE), Marko Popovic, Joseph Stabile (ME)

5:00pm
Investigation of UCL Tears in Baseball Pitchers [Non-judging Presentation]
Maddie Brennan, Steven Gallagher, Ben Kurtze, Paula Sardi
Advisors: Selçuk Guçeri (ME), Marko Popovic

Social Science and Policy Studies
Salisbury Laboratories, Room 305

9:00am
Train of Four Monitoring
Christopher Beauregard, Nicholas Bergstrom, Edward Crofts, Kyler Dillion, Anastasia Karapangou, Kinsey McNamara
Advisors: Kwonmoo Lee (BME), Ahmet Can Sabuncu (ME), Jeanine Skorinko

9:30am
Choice Effects in Online Daily Fantasy Sports
Sean Brady, Jackson Perry, Jonathan Venne, Saul Woolf
Advisors: Rick Brown (ECE), Randy Paffenroth (MA), Jeanine Skorinko

10:00am
The Motivations of Social Tuning: Perspective Taking and Affiliative Motivation
Paul Beatty, Luisa Perez, Daniel Vega
Advisor: Jeanine Skorinko

10:30am
Deeper Learning in Paraguay: Examining Relations between Student Interpersonal, Cognitive, and Emotional Skills, Outcomes, and Career Aspirations at Escuela Agrícola, Paraguay
Maria Daigle
Advisors: Erin Ottmar, Rob Traver
11:00am
Effects of Cultural Orientation and Harmony
Seeking or Avoiding Rejection Mindset on Social Tuning in Morocco and the United States
Jessica Greenleaf
Advisors: Mohamed Brahimi (HU), Jeanine Skorinko

12:30pm
Utilizing ALT for Online Class
Ethan Marshall
Advisors: James Doyle, Oleg Pavlov, Shari Weaver

1:00pm
Creating an SD Modeling API for Games
Jacob Friese
Advisors: Khalid Saeed, Jeff Kesselman (IMGD)
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- A project cannot be “mission critical” or on the “critical path.”
- The best types of projects support or enhance current activities.
- Most MQPs consist of a team of students (2–4) and a faculty advisor, although in some cases—depending upon the scope of the project and the disciplines of the student team—there may be additional advisors.

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To contact a specific academic department, please refer to the list below. (Note: All numbers begin with 508-831-).

- Aerospace Engineering – 5576
- Biology and Biotechnology - 5543
- Biomedical Engineering - 5447
- Business - 5218
- Chemical Engineering - 5250
- Chemistry and Biochemistry - 5371
- Civil and Environmental Engineering - 5294
- Computer Science - 5357
- Electrical and Computer Engineering - 5231
- Environmental Engineering - 5530
- Humanities and Arts - 5246
- Interactive Media and Game Development - 4977
- Interdisciplinary and Global Studies - 6699
- Mathematical Sciences - 5241
- Mechanical Engineering - 5236
- Physics - 5258
- Professional Writing - 5198
- Robotics Engineering - 6665
- Social Science and Policy Studies - 5296

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Head of Process and Technology Separations Technology Cluster
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