

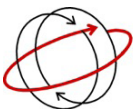


# 6<sup>th</sup> Annual EEIC Engineering Capstone Design Showcase

**Keynote Speaker:** Thornton May

*Futurist, Executive Director, and Dean of the IT Leadership Academy*

April 23, 2013



**Enriching. Expanding. Excelling.**  
A Partnership of Honda and The Ohio State University



ArcelorMittal

## Welcome to the 6th Annual Engineering Education Innovation Center (EEIC) Engineering Capstone Design Showcase!

Thank you for joining us at the 6th Annual EEIC Engineering Capstone Design Showcase sponsored by the Engineering Education Innovation Center and ArcelorMittal. The Showcase is a platform for individual, multidisciplinary and industry-sponsored student projects which enables Ohio State engineering students to display their capstone projects and to answer questions about their research, design methods and capstone experience. Senior engineering students spend one to two academic semesters on these projects, which culminate their undergraduate academic experience at The Ohio State University.

This year we are privileged to have **Thornton May** as our keynote speaker for the Engineering Capstone Design Showcase. Thornton May is an empirical futurist. Educated as a cultural anthropologist and trained as a cognitive scientist, he collects data about how executives think and how organizations prepare for the future. His forecasts of the impact of changing technologies on humans and human institutions have been used to create the national strategic plans for Korea and Singapore. In addition, his projections have informed the 25 year scenarios for the United States Navy and NASA.  
<http://support.sas.com/publishing/authors/may.html>

The title of the Keynote: **The Heroic Age of With-Data Entrepreneurship**  
*One of the data points futurists pay attention to is what are the Alphas and the Übers paying attention to. Creating value with data is definitely on the CEO radar screen. It is one of GE CEO Jeff Immelt's "two big things we do this year." In addition, for the first time at the Davos World Economic Forum, the conversation about extracting value from data was moved from an "offsite" remote location to a couldn't-be-missed and must-be-attended main-tent session inside the Congress Center. Davos watchers believe this venue shift signals the arrival of data entrepreneurship and Big Data as a ready for "primetime" top-of-mind issue.*

We hope you enjoy learning more about our students and their academic research. Please enjoy the Showcase!

## Agenda

- 12:00 p.m.** Keynote Speaker:  
Thornton May, *Futurist,*  
*Exec. Dir. and Dean of the IT Leadership Academy*  
250 Knowlton School of Architecture
- 12:30 p.m.** Design Showcase Opens  
Blackwell Ballroom
- 3:00 p.m.** Welcome and Introduction  
Bob Rhoads, *Capstone Design Program Coordinator*
- 3:05 p.m.** Presentation to Showcase Sponsors:  
ArcelorMital  
Honda-OSU Partnership
- 3:10 p.m.** Remarks  
David B. Williams,  
*Monte Ahuja Endowed Dean's Chair*  
*Executive Dean of the Professional Colleges and*  
*Dean of the College of Engineering*
- 3:20 p.m.** Showcase Project Winners Presentation
- 3:30 p.m.** Closing Remarks  
Bob Rhoads, *Capstone Design Program Coordinator*

# Student Major Key:

AE - Aerospace Engineering  
BME - Biomedical Engineering  
BUG - Business  
CBE - Chemical & Biomolecular Engineering  
CE - Civil Engineering  
CHEM - Chemistry  
CIS - Computer Information Systems  
COM - Communications  
CRP - City & Regional Planning  
CSE - Computer Science Engineering  
DEN - Dentistry  
ECE - Electrical & Computer Engineering  
ECON - Economics  
EE - Environmental Engineering  
ENGL - English  
ENGPHY - Engineering Physics  
FABE – Food, Agricultural, Biological Engineering  
FDS - Food Science  
FIN - Finance  
ID - Industrial Design  
ISE - Integrated & Systems Engineering  
MAR - Marketing  
MBA - Masters Business Administration  
ME-Mechanical Engineering

# Computer Science Engineering I

- 1 Pivot**  
Students: Michael Griscom, CSE; David Klimek, CSE;  
Frans Kurniawan, CSE; Josh Ventura, CSE; Shitianyu Pan, CSE  
Faculty Advisor(s): Roger Crawfis  
Industry Sponsor: N/A  
Industry Contact(s): N/A
- 2 Realm of Kaodith**  
Students: Andrew Buelow, CIS; Mario Carneiro, CIS;  
Kyle Donovan, CIS; Sam Gutentag, CIS; Stephen Hara, CSE  
Faculty Advisor(s): Roger Crawfis  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Roger Crawfis
- 3 Space Race**  
Students: Evan deLaubenfels, CSE; Clayton Mallory, CSE;  
David Pittenger, CSE; A. Justin Smith-Eble, CSE; Troy Sullivan, CSE  
Faculty Advisor(s): Roger Crawfis  
Industry Sponsor: N/A  
Industry Contact(s): N/A
- 4 Luximation**  
Students: Stephen Smith, CSE; Mike Johnson, CSE; Chad Travis,  
CSE; Chris Price, CIS; Lap Hou Chan, CSE; Tim Carpenter, CSE  
Faculty Advisor(s): Roger Crawfis, Matt Boggus  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Roger Crawfis, Matt Boggus

# Biomedical Engineering

## 5 Wheelchair Center of Gravity

Students: Brandon Toms, ME; Jonathan King, ME; Benjamin Jelen, BME; Ankit Prasad, BME; Panayotis Papas, BME  
Faculty Advisor(s): Dr. Carmen DiGiovine, Dr. Mark Ruegsegger  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Dr. Mark Ruegsegger

## 6 External Feedback Device for Running Form Modification

Students: John Clark, BME; Audrey Nguyen, BME; Hiten Patel, BME; Brian Phillips, ME; Avrey Thau, BME; Jeff Valentin, BME  
Faculty Advisor(s): Dr. Carmen DiGiovine, Dr. Sandra Metzler, Dr. Mark Ruegsegger  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Dr. Mark Ruegsegger

## 7 Building Guide System

Students: Mikhail Viznyuk, BME; Adam Malek, ME; Mengyu Liu, BME; Rachel Mallonee, BME  
Faculty Advisor(s): Dr. David Lee, Ms. Theresa Berner  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Dr. Mark Ruegsegger

## 8 Swappable Front End

Students: Ryan Megger, BME; Shamanth Urs, BME; Nicholas Joodi, BME; Leigh Anne Diener, BME; Yi Juin Liew, BME  
Faculty Advisor(s): Dr. David Lee, Theresa Berner  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Dr. Mark Ruegsegger, Dr. David Lee, Dr. John DeWitt, PT, AT, SCS

## 9 Mobile Arm Support Device

Students: Marston Bender, ME; Kristyn Burks, BME; Adam Greening, ME; Sheheryar Jamali, BME; Samantha Ravindrasingam, ME  
Faculty Advisor(s): Dr. Jane Case-Smith, Dr. Mark Ruegsegger  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Dr. Mark Ruegsegger, Dr. David Lee, Dr. John DeWitt, PT, AT, SCS

## 10 Cardiac Phantom for MRE Imaging

Students: Mitchell Romito, BME; Ricky Baylis, BME; Marcus Badgely, BME; Ben Hill, BME; Matthew Reynolds, BME  
Faculty Advisor(s): Dr. Mark Ruegsegger, Dr. David Lee, Dr. John DeWitt, PT, AT, SCS  
Industry Sponsor: Ohio State Biomedical Engineering  
Industry Contact(s): Dr. Mark Ruegsegger, Dr. David Lee, Dr. John DeWitt, PT, AT, SCS

## 11 Hip Continuous Passive Motion Device

Students: Nick Black, BME; Meagan Ita, BME; Andrew Turner, ME; Beth Schlegel, ME; Michael Vignos, BME  
Faculty Advisor(s): Dr. Mark Ruegsegger, Dr. David Lee, Dr. John DeWitt, PT, AT, SCS  
Industry Sponsor: Ohio State Biomedical Engineering  
Industry Contact(s): Dr. Mark Ruegsegger, Dr. David Lee, Dr. John DeWitt, PT, AT, SCS

## 12 Infant Mobility Device

Students: Rachel Barnes, ME; Lindsay Fischer, BME; Christine Sawchik, ME; Kevin Soong, BME; Alan Witte, BME  
Faculty Advisor(s): Dr. Mark Ruegsegger, Dr. David Lee, Dr. John DeWitt, PT, AT, SCS  
Industry Sponsor: Nationwide Children's Hospital  
Industry Contact(s): Michelle Byars

- 13 Magnetic Resonance Elastography (MRE): Imaging Driver**  
 Students: Karianne Logan, BME; Robert Sibilia, BME; Kevin Buno, BME; Matthew Baker, BME; Chethan Eleswarpu, BME  
 Faculty Advisor(s): Dr. Mark Ruegsegger, Dr. David Lee, Dr. John DeWitt, PT, AT, SCS  
 Industry Sponsor: The Ohio State University  
 Industry Contact(s): Dr. Mark Ruegsegger, Dr. David Lee, Dr. John DeWitt, PT, AT, SCS
- 14 My Team Triumph Adult Stroller**  
 Students: Jeff McNeil, BME; Phil Wessinger, BME; Nick Basilius, BME; Karen Johnston, BME; Michael Huhn, BME  
 Faculty Advisor(s): Dr. Mark Ruegsegger, Dr. David Lee, Dr. John DeWitt, PT, AT, SCS  
 Industry Sponsor: My Team Triumph  
 Industry Contact(s): Georgeanna Haviland
- 15 NASA Sterilization Device**  
 Students: Stephen Kleine, BME; Colton Lloyd, BME; Peter Bielecki, BME; Stephanie Marner, BME; Jenna Hoersten, BME  
 Faculty Advisor(s): Dr. Mark Ruegsegger, Dr. David Lee, Dr. John DeWitt, PT, AT, SCS  
 Industry Sponsor: NASA Glenn Research Center  
 Industry Contact(s): Lauren Best, DeVon Griffin
- 16 Sliderboard Stroke Rehabilitation Device**  
 Students: Jaime Bravo, BME; Matt D'Errico, BME; Marija Ilievska, BME; Jessica Russo, BME; Maria Talarico, BME  
 Faculty Advisor(s): Dr. Mark Ruegsegger; Adam Spitznagle  
 Industry Sponsor: Ohio State Biomedical Engineering  
 Industry Contact(s): Dr. Mark Ruegsegger, Dr. David Lee, Dr. John DeWitt, PT, AT, SCS
- 17 AgroTools Glove Design**  
 Students: Brian Baird, ME; Andrew Loewenstein, ME; Austin Prakel, BME; Sarah Watzman, ME  
 Faculty Advisor(s): Dr. Sandra Metzler, Dr. Margaret Teaford  
 Industry Sponsor: National Institutes of Health  
 Industry Contact(s): N/A

- 18 Converted Class Table**  
 Students: Bryan McCaulley, ME; Lisa Allen, ME; Julia Langholt, ME; Handong Jung, BME, Kari Innenberg, BME  
 Faculty Advisor(s): Dr. Sandra Metzler, Dr. Margaret Teaford  
 Industry Sponsor: The Ohio State University  
 Industry Contact(s): Dr. Mark Ruegsegger, Dr. David Lee, Dr. John DeWitt, PT, AT, SCS
- 19 Brutus Lift**  
 Students: Nicole Beaugrand, BME; Megan Jones, BME; Claude Lawrence, ME; Eric Suszka, ME; Samantha Wadge, BME  
 Faculty Advisor(s): Dr. Sandra Metzler, Dr. Mark Ruegsegger  
 Industry Sponsor: The Ohio State University  
 Industry Contact(s): N/A
- 20 Wheel Chair Jack**  
 Students: Spencer Dunaway, BME; Thomas Guerrero, BME; Yu Zuo, BME; Jack Martin, ME; Shuo Yang, ME  
 Faculty Advisor(s): Dr. Sandra Metzler, Dr. Mark Ruegsegger  
 Industry Sponsor: The Ohio State University  
 Industry Contact(s): Dr. Mark Ruegsegger, Dr. David Lee, Dr. John DeWitt, PT, AT, SCS
- 21 Trunk Assistant**  
 Students: Jared Collier, ME; Justin Mesick, ME; Rachael Meyer, ME; Cam Rasey, ME; Eric Ricciardi, ME  
 Faculty Advisor(s): Dr. Mark Ruegsegger, Dr. David Lee, Dr. John DeWitt, PT, AT, SCS  
 Industry Sponsor: The Ohio State University  
 Industry Contact(s): Dr. Mark Ruegsegger, Dr. David Lee, Dr. John DeWitt, PT, AT, SCS
- 22 Hemiwalker with Wheels**  
 Students: Ethan Traylor, ME; Matt Metka, ME; Kevin Zeng, BME; Eric Moyer, BME; Ernest Levert, BME  
 Faculty Advisor(s): Dr. Sandra Metzler, Dr. Mark Ruegsegger  
 Industry Sponsor: The Ohio State University  
 Industry Contact(s): Dr. Sandra Metzler

# Chemical & Biomolecular Engineering

## 23 Surfactant Additives for Turbulent Drag Reduction in Recirculating Fluid Flow Systems

Students: Frank Trebar, CBE; Cody Dewitt, CBE; Molly Langhenry; Joanna Gobeille, CBE  
Faculty Advisor(s): Andy Maxson  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Jacques Zakin

## 24 Characterization of Kibbles and Interactions with Fat and Flavor Enhancers Addition

Students: J. Todd Starkey, CBE; Michael Fontaine, CBE; Jessica Jude, CBE; Stacey Sherman, CBE  
Faculty Advisor(s): Dr. David Tomasko  
Industry Sponsor: Procter & Gamble  
Industry Contact(s): Dr. Maria Villagran

## 25 Design of a Rapid Start-Up Solid Oxide Fuel Cell System

Students: David Chmielewski, CBE; Sarah Isherwood, CBE; Goutham Putta, CBE; Katie Zorc, CBE  
Faculty Advisor(s): Dr. David Tomasko  
Industry Sponsor: NexTech Materials  
Industry Contact(s): Gene Arkenberg

## 26 Economics and Scale-up of Landfill Gas Recovery at SWACO

Students: Cornelius Cilliers, CBE; David Benco, CBE; Westley Russel, CBE; Michael Simmons, CBE  
Faculty Advisor(s): Dr. David Tomasko  
Industry Sponsor: Adsorption Research, Inc.  
Industry Contact(s): Kent Knaebel

## 27 Extensional Rheology - Viscous Tailing in the Filling Process of Shampoo Bottles

Students: David Chen, CBE; Amanda Hansen, CBE; Karl Kroll, CBE; Binbin Wu, CBE  
Faculty Advisor(s): Dr. David Tomasko  
Industry Sponsor: Procter & Gamble  
Industry Contact(s): Dr. Fei Wang

## 28 Fumigation of Psyllium Husks via Methyl Bromide

Students: Zach Adams, CBE; Alex Woll, CBE; Zach Ballantyne, CBE; Adam Clifford, CBE; Humaid Alghassani, CBE  
Faculty Advisor(s): Dr. David Tomasko  
Industry Sponsor: Procter & Gamble  
Industry Contact(s): Steve Cammarn, Matt Kaczanowski

## 29 Impact of Catalyst Improvement to Direct Methanol Fuel Cells (DMFCs)

Students: Kyle Hatton, CBE; Nicholas Wood, CBE; Patrick Shoemaker, CBE; Nikita Kevlich, CBE  
Faculty Advisor(s): Dr. David Tomasko  
Industry Sponsor: pH Matter, LLC  
Industry Contact(s): Dr. Paul Matter

## 30 Low Cost Solar Powered Refrigeration for Storing Antiretroviral Drugs Used in the Treatment of HIV Infection in Botswana

Students: Garrett Price, CBE; Kristi Olesik, CBE; Lucas McBride, CBE; Lianwan Huang, CBE  
Faculty Advisor(s): Dr. David Tomasko  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Dr. Michael Paulaitis

## 31 PEI Foam Extrusion

Students: Nirupa Manohar, CBE; Alex Elchert, ChBE; Ted Elliott, CBE; Dina Cahyadi, CBE  
Faculty Advisor(s): Dr. David Tomasko  
Industry Sponsor: Advanced Materials Technologies  
Industry Contact(s): Dr. Akbar Fard, Hrishikesh Munj

- 32 Processing Natural Gas from Utica Shale**  
Students: Michele Brizgys, CBE; Ryan Menasco, CBE; Terhi Reponen, CBE; Zacharias Obermeyer, CBE  
Faculty Advisor(s): Dr. David Tomasko  
Industry Sponsor: Ohio State Chemical and Biomolecular Engineering  
Industry Contact(s): Dr. David Tomasko
- 33 Thin-Film-Composite Membranes for CO<sub>2</sub> Separation**  
Students: Andrea Adam, CBE; Meg Butts, CBE; Josh Lisheid, CBE; Jo Pi, CBE  
Faculty Advisor(s): Dr. David Tomasko  
Industry Sponsor: Dr. W.S. Winston Ho  
Industry Contact(s): GTA Varun Vakharia
- 34 Centrifugal Separation of Algae for Biofuel Applications**  
Students: Brian Marshall, CBE; Timothy Kananen, CBE; Jason Su, CBE; Ryan Gallagher, CBE  
Faculty Advisor(s): Dr. Jeffrey Chalmers  
Industry Sponsor: Dr. Jeffrey Chalmers  
Industry Contact(s): Dr. Jeffrey Chalmers, Clayton Deighan
- 35 Development of a Continuous Process for Growing Carbon Nanofibers using Ohio Coal**  
Students: Chenxi Li, CBE; Daniel Manning, CBE; Derek Mason, CBE; Jesaiah King, CBE  
Faculty Advisor(s): Dr. Umit Ozkan  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Dr. Umit Ozkan
- 36 Life Cycle Modeling of 1,3-Propanediol**  
Students: Kara Bihn, CBE; Megan Hoppe, CBE; Adam Reckless, CBE; Maddie Shirk, CBE  
Faculty Advisor(s): Robert Urban  
Industry Sponsor: Dr. Bhavik Bakshi  
Industry Contact(s): Dr. Bhavik Bakshi

- 37 Aerosols: Scalable, Semi-continuous Production of Micelles via Coaxial Electrospray**  
Students: Patrick Merrilees, CBE; Ben Bailey, CBE; Zeke McVey, CBE; Andrew Taris, CBE  
Faculty Advisor(s): Dr. David Tomasko  
Industry Sponsor: Barbara Wyslouzil  
Industry Contact(s): Barbara Wyslouzil
- 38 Modeling the Decay in Reactivity of Limestone-based CaO Sorbent Towards CO<sub>2</sub> Over Multiple Cycles**  
Students: Jasline Sahota, CBE; Joseph Huntley, CBE; Nicholas Deerhake, CBE; Karen Kwong, CBE  
Faculty Advisor(s): Niranjani Deshpande, Dr. L. S. Fan  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Niranjani Deshpande
- 39 Evaluation of Separation Methods for Recovery of Butanol from Fermentation Broth**  
Students: Steven Hoover, CBE; Gannon Kast, CBE; Andrew Motz, CBE; Andrew Toro, CBE  
Faculty Advisor(s): Dr. Chihae Yang  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Yinming Du

# Civil & Environmental Engineering

- 40 Student Housing Tower Framing Study**  
Students: TBD, CE  
Faculty Advisor(s): Dr. John George, Dr. William Wolfe  
Industry Sponsor: N/A  
Industry Contact(s): N/A
- 41 Dublin Road Water Plant Ozone/Biologically-Active Carbon Upgrades**  
Students: TBD, EE  
Faculty Advisor(s): Dr. Linda Weavers  
Industry Sponsor: MWH, City of Columbus  
Industry Contact(s): Tim Wolfe, MWH; Mark Eppich, City of Columbus

# Computer Science Engineering II

- 42 Biziprocity**  
Students: Maxwell Elliott, CSE; Zhixuan Jia, CSE; Tim Raphael, CSE; Paul Wisniewski, CSE  
Faculty Advisor(s): Moez Chaabouni  
Industry Sponsor: Fisher College of Business  
Industry Contact(s): Kyle Gantos
- 43 Find Brutus**  
Students: Michael Jodon, CIS; Mark Mathis, CSE; Jacob Peddicord, CSE; Carl Shotwell, CSE  
Faculty Advisor(s): Moez Chaabouni  
Industry Sponsor: EduTechnologic  
Industry Contact(s): Brad Henry
- 44 Proteomics Workbench**  
Students: Trevor Holl, CIS; Dan Tucholski, CSE; Steve Ruiz, CIS; Robert Ditmars, CIS  
Faculty Advisor(s): Moez Chaabouni  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Michael Freitas
- 45 Tag**  
Students: Lisa Krauss, CSE; Nathan Braid, CSE; Jack Miller, CIS; Aaron Shortridge, CSE; Jay Hines, CIS  
Faculty Advisor(s): Moez Chaabouni  
Industry Sponsor: Zach Huber  
Industry Contact(s): Zach Huber
- 46 Zembretta Semantic Search**  
Students: Ananth Muralidharan, CSE; Chris Sedar, CSE; Michael Johnson, CSE; Ryan Brown, CSE; Siva Baskaran, CSE  
Faculty Advisor(s): Moez Chaabouni  
Industry Sponsor: Zembretta  
Industry Contact(s): Richard Wagner



**47 Grange Insurance Audubon Center Visitor Engagement Application**

Students: Donald Bacharowski, CIS; Mihir Amin, CSE; Neha Mazumder, MS CSE; Sam Meier, CSE, Alexander Lee, CSE  
Faculty Advisor(s): Moez Chaabouni  
Industry Sponsor: Grange Insurance Audubon Center  
Industry Contact(s): Christie Vargas, Amy Boyd

**48 3D Motion Capture**

Students: Jason Kao, CSE; Kevin David, CSE; James Sosan, CSE; Depak Kumar, CSE; Kyle Albert, CSE  
Faculty Advisor(s): Dr. Igor Malkiman  
Industry Sponsor: David Zimbeck  
Industry Contact(s): David Zimbeck

**49 Bucket List Match**

Students: Everly Okorji, CSE; Shi Ho Wang, CSE; Christopher Hartman, CIS; Mike Sustarsic, CSE  
Faculty Advisor(s): Dr. Igor Malkiman  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Benjamin Wierwille

**50 Data Visualization for DoubleCheck LLC**

Students: Anil Sunke, MS CSE; Cynthea Godwin, MS CSE; Miao-chen Chou, MS CSE; Yen Nei Lee, BS CSE  
Faculty Advisor(s): Dr. Igor Malkiman  
Industry Sponsor: Sanford S. Brown  
Industry Contact(s): Sanford S. Brown

**51 DigiClips**

Students: Calvin Goodman, CSE; James Hickman, CSE; Jonathon Hickman, CSE; Kevin Landers, CSE; Jianan Zheng, CSE  
Faculty Advisor(s): Dr. Igor Malkiman  
Industry Sponsor: DigiClips  
Industry Contact(s): Robert Shapiro

**52 Inter-building Guidance System**

Students: David Burl, CSE; Shao Zheng, CSE; Nathaniel Dikeman, CSE; Sada Diallo, CSE  
Faculty Advisor(s): Dr. Igor Malkiman  
Industry Sponsor: Ohio State Biomedical Engineering  
Industry Contact(s): Dr. David Lee, Dr. Mark Ruegsegger

**53 Leading EDJE Recruitment System**

Students: Jeffrey DePassio, CSE; Adam Stutz, CSE; Yi Mei, CSE; Ben Kracker, CSE  
Faculty Advisor(s): Dr. Igor Malkiman  
Industry Sponsor: Leading EDJE  
Industry Contact(s): Dave Michels, Erica Krumlauf, Kate Sutter

**54 Outlook Media Sales Application Version 2**

Students: Scott Beaber, CSE; Michael Detwiler, CSE; Simeon Georgiev, CIS; Anthony Zuccarelli, CSE  
Faculty Advisor(s): Dr. Igor Malkiman  
Industry Sponsor: Outlook Media  
Industry Contact(s): Brad Henry

**55 PI-COLA**

Students: Jesse Akers, CSE; Yan Xu, CSE; William Dazey, CSE; Karl Racke, CSE  
Faculty Advisor(s): Dr. Igor Malkiman  
Industry Sponsor: The Ohio State University  
Industry Contact(s): Professor Neelam

**56 Teacher's Classroom Aid**

Students: Emily Smith, CSE; Joel McCance, CSE; Ben Davis, CSE; Joe Chirico, CSE  
Faculty Advisor(s): Dr. Igor Malkiman  
Industry Sponsor: EduTechnologic  
Industry Contact(s): Brad Henry

- 57 Veterinary Anesthesia SOAP Applications**  
 Students: Nick Rotonda, CSE; Jacob McConnell, CSE; Vince Fonte, CSE; Mike Timko, CSE  
 Faculty Advisor(s): Dr. Igor Malkiman  
 Industry Sponsor: Dr. Phillip Lerche, OSU Veterinary School  
 Industry Contact(s): Dr. Phillip Lerche, Brad Henry
- 58 yesgoody Online Data Collector**  
 Students: Sergiy Borysov, CSE; Dave Hewitt, CSE; Amasi Elbakush, CSE; Aneeth Krishnamoorthy, CSE; Conor Dockry, CSE  
 Faculty Advisor(s): Dr. Igor Malkiman  
 Industry Sponsor: yesgoody, Inc.  
 Industry Contact(s): Andrew Yates, Yixue Li, Dami Shogunro, Xingzhong Xu
- 59 EcoCAR Virtual Showroom Assistant**  
 Students: Vishal Bhatnagar, CSE; Patrick Carfrey, CSE; Dan Steck, CSE; Nishita Yalamanchili, CSE  
 Faculty Advisor(s): Dr. Igor Malkiman  
 Industry Sponsor: Dr. Shawn Midlam-Mohler  
 Industry Contact(s): Dr. Shawn Midlam-Mohler
- 60 Infotainment System App**  
 Students: Sudheer Tumu, CSE; Royden Lewis, CSE; Viswanathan Munirajan, CSE; John Brown; CSE  
 Faculty Advisor(s): Dr. Igor Malkiman  
 Industry Sponsor: Dr. Shawn Midlam-Mohler  
 Industry Contact(s): Dr. Shawn Midlam-Mohler

# Motorsports Capstone Projects

- 61 Actuation of an Automated-Manual Transmission**  
 Students: Christopher Burns, ME; Luke Debruin, ME; Josh Hendricks, ME  
 Faculty Advisor(s): Dr. Shawn Midlam-Mohler  
 Industry Sponsor: Ohio State Motorsports Capstone Program  
 Industry Contact(s): Dr. Shawn Midlam-Mohler
- 62 Buckeye Bullet 3 Vehicle Lift and Mobilization System**  
 Students: Matt Gittings, ME; Josh Kohli, ME; Dustin Rose, ME  
 Faculty Advisor(s): Dr. Shawn Midlam-Mohler  
 Industry Sponsor: Ohio State Buckeye Bullet  
 Industry Contact(s): Dr. Shawn Midlam-Mohler
- 63 Converting an Engine to E85 and Design of Electrically Heated Catalyst System**  
 Students: Adriana Leslie, ME; Andrew Spiegel, ME; Jason Ward, ME  
 Faculty Advisor(s): Dr. Shawn Midlam-Mohler  
 Industry Sponsor: Ohio State Motorsports Capstone Program  
 Industry Contact(s): Dr. Shawn Midlam-Mohler
- 64 EcoCAR2 Suspension**  
 Students: Aaron Ressa, ME; Brad Shear, ME; Allen Sun, ME  
 Faculty Advisor(s): Dr. Shawn Midlam-Mohler  
 Industry Sponsor: Ohio State EcoCAR  
 Industry Contact(s): Dr. Shawn Midlam-Mohler
- 65 EcoCAR2 Charging System**  
 Students: Alex Bergman, ME; John Swigart, ME; Xue Yang, ECE  
 Faculty Advisor(s): Dr. Shawn Midlam-Mohler  
 Industry Sponsor: Ohio State EcoCAR  
 Industry Contact(s): Dr. Shawn Midlam-Mohler

# Multidisciplinary Engineering

## 66 **Burden Airplane Manufacturing**

Students: Ryan Cahill, ME; Sagar Dave, ECE; Yue Li, ECE; Andrew Martin, ME; Diana Merriam, ME  
Faculty Advisor(s): Bob Rhoads  
Industry Sponsor: Chris Burden  
Industry Contact(s): Nigel Briand

## 67 **Honda Composite Suspension Arm for Mass-Market Passenger Car**

Students: Kyle Ginaven, ME; Peter Roser, ME; Gaurav Krishnaraj, ME; Jeremy Valentine, ME; Steven Haidet, ECON  
Faculty Advisor(s): Bob Rhoads  
Industry Sponsor: Honda R&D America  
Industry Contact(s): Josh Johnson, Evan Martin, Daniel Gross

## 68 **Aquaponics**

Students: Andrew Stratton, FABE; Alex Aurand, ME; Samantha Fisher, FDS; Collin Greer, FIN; Nick Weithman, ME; Bo Jiang, ME  
Faculty Advisor(s): Dr. Howard Greene, Bob Rhoads  
Industry Sponsor: GM Foundation  
Industry Contact(s): Jim Glenn

## 69 **Accelerated Saltwater Corrosion Testing on Subsea Equipment**

Students: Rosa Nemeč, ME; Jake Detec, ME; Jonathan Schuler, ME; Daniel Miller, ME; David Smith, CHEM  
Faculty Advisor(s): Dr. Jerald Brevick, Bob Rhoads  
Industry Sponsor: Cameron  
Industry Contact(s): Daniel Baxter, Kevin Minnock

## 70 **Localized Corrosion Rate Measuring Tool Phase II**

Students: Zijian Huang, ME; Dan Marrinan, ENGPHY; Bo Peng, ECE; Chungho Song, ECE  
Faculty Advisor(s): Dr. Jerald Brevick, Bob Rhoads  
Industry Sponsor: Honda R&D America  
Industry Contact(s): Kyle Chapman

## 71 **John Deere Autonomous Tractor**

Students: Kyle Steinkerchner, ME; Jason Schriener, ME; Jacob Kilver, ECE; Sara Bidar, ECE  
Faculty Advisor(s): Dr. Joanne Degroat, Bob Rhoads  
Industry Sponsor: John Deere  
Industry Contact(s): Dennis Jeffries, Jeffery Runde

## 72 **AMETEK Wall-Mounted Digital Battery Charger**

Students: Matt Ricciardi, ME; Luke Sobota, ECE; Tianyi Chen, ECE; Sam Stuard, ENGPHY  
Faculty Advisor(s): Dr. Keith A. Redmill, Bob Rhoads  
Industry Sponsor: AMETEK SOLIDSTATE CONTROLS  
Industry Contact(s): Phil Irwin

## 73 **Lakeshore Cryotronics Virtual Board**

Students: Steve Shaull, ISE; Akul Kakumani, ME; Kean Mervis, ME; Grant Haldeman, COM  
Faculty Advisor(s): Dr. Peter Rogers  
Industry Sponsor: Lakeshore Cryotronics  
Industry Contact(s): Ed Maloof

## 74 **Stainbuster®, A Novel Composite Dental Bur**

Students: Brian Needham, MBA/MHA; Alexander Tipton, DEN; Samantha Crance, BME; Daniel Petrarca, BME; Jonathan Occkial, ME; Katherine Bakken, MAR  
Faculty Advisor(s): Dr. Peter Rogers, Dr. Dale Kanner  
Industry Sponsor: Abrasive Technology, Inc.  
Industry Contact(s): Eric Sagun

## 75 **Stickee Shapes**

Students: Madelyn Gruseck, ME; Phillip Eisner, ME; Joseph Nurre, CBE; Jacob Tinlin, ENGL; Rob Reznick, MBA; Rachel Clingman, ID  
Faculty Advisor(s): Dr. Peter Rogers  
Industry Sponsor: Auld Technologies and COSI  
Industry Contact(s): Esther See, Auld; Laura Leon, COSI

- 76 Storm-Water Exfiltration BMP**  
Students: Andrea Jungers, ME; Phoebe Low, EE; Laura Reisenauer, EE; John Simmons, ME  
Faculty Advisor(s): Dr. Peter Rogers  
Industry Sponsor: Water Quality Solutions, LLC  
Industry Contact(s): Nelson Kohman
- 77 EnergyHAWC**  
Students: James Rowland, ME; Scott Heckler, ME; Sarah Weals, ME; Marcy Kaercher, ME; Chris Schleich, ME; Lee Trask, ME; Brendan O'Shaughnessy, ME; Yufan Ling, ME; Fandi Peng, ECON  
Faculty Advisor(s): Dr. Mark Walter  
Industry Sponsor: Lawrence Berkeley Research Laboratory, US Department of Energy  
Industry Contact(s): Stacy Pratt
- 78 Honda Vehicle Tank Fuel Level Measurement**  
Students: James Ren, ME; David Reed, ME; Jonathon Roan, ME  
Faculty Advisor(s): Michael Hoffmann, Bob Rhoads  
Industry Sponsor: Honda R&D America  
Industry Contact(s): Luke Walker
- 79 John Deere Bearing Lubrication Effectiveness**  
Students: Isaac Hong, ME; Qiuchi Xiong, ME; Ryan Holland, ISE; Shawn Spencer, ME; Jeff Wheeland, ME  
Faculty Advisor(s): Michael Hoffmann, Bob Rhoads  
Industry Sponsor: John Deere  
Industry Contact(s): Dennis Jeffries
- 80 Marion Industries Material Flow Analysis and Improvement Project**  
Students: Emily Yu, ISE; An Fu, ME; Alexander Skippers, ISE; Guenzhe Sun, ME  
Faculty Advisor(s): Dr. Rajiv Shivpuri, Dr. Peter Roger  
Industry Sponsor: Marion Industries LLC  
Industry Contact(s): Art Faulkner, Gelver Vergeldedios

- 81 Future Commercial Truck Seat**  
Students: Sudanshu Agrawal, ME; Justin Bechstein, ID; Aaron Cornell, MBA; Kai Jiang, BUG; Mary McKay, CRP; Jordan Tollet, ME; Jonathan Woche, ME  
Faculty Advisor(s): Scott Potter  
Industry Sponsor: Commercial Vehicle Group  
Industry Contact(s): Paul Bennett
- 82 Cap13-Transmet Waterfall Team**  
Students: Clinton LeHotan, ME; Ryan Johnson, ME; Katie Jones, CBE; Tracie Sorvillo, MBA  
Faculty Advisor(s): Dr. Scott Sink  
Industry Sponsor: Transmet Corporation  
Industry Contact(s): Doug Shull

# Integrated & Systems Engineering (6-Sigma)

## 83 Yield Loss Reduction Project

Students: Shaoxuan Li, ISE  
Faculty Advisor(s): Dr. Scott Sink  
Industry Sponsor: Transmet Corporation  
Industry Contact(s): Doug Shull

## 84 Body Build Cycle Time Reduction

Students: Benjamin Zimmer, ISE  
Faculty Advisor(s): Dr. Scott Sink  
Industry Sponsor: Sutphen Corporation  
Industry Contact(s): Drew Sutphen

## 85 BronShoe Silver Restoration

Students: Victor Lopez, ISE  
Faculty Advisor(s): Dr. Scott Sink  
Industry Sponsor: Bron-Shoe Company  
Industry Contact(s): Bob Kaynes

## 86 Design and Implementation of an Energy Management Process

Students: Dominic Ruggerie, ISE  
Faculty Advisor(s): Dr. Scott Sink  
Industry Sponsor: Sherwin Williams  
Industry Contact(s): Chuck Kletrovets, Bryla Potter

## 87 General Internal Medicine Call Center Wait Time Reduction Project

Students: Nilav Ranpara, ISE  
Faculty Advisor(s): Dr. Scott Sink  
Industry Sponsor: The Ohio State Wexner Medical Center  
Industry Contact(s): Valery Tarver, Pamela Gray, Neeraj Tayal

## 88 Heavy Capacity Assembly Optimization

Students: James (Joey) Miller, ISE  
Faculty Advisor(s): Dr. Scott Sink  
Industry Sponsor: METTLER TOLEDO Masstron  
Industry Contact(s): Stephanie Viehman

## 89 Implementation of OneNote in OSU Clinic Call Center Office

Students: Jing Xin Yu (Allie Yu), ISE  
Faculty Advisor(s): Dr. Scott Sink  
Industry Sponsor: The Ohio State Wexner Medical Center  
Industry Contact(s): Pam Gray, Ann Henry, Charlotte Boyer, Julia Degood, Joann Matthews

## 90 Implementing 5S at Bron-Shoe

Students: Christopher Nester, ISE  
Faculty Advisor(s): Dr. Scott Sink  
Industry Sponsor: Bron-Shoe  
Industry Contact(s): Bob Kaynes

## 91 Improve Physical Therapy Patient Satisfaction Scores in Pilot Rehabilitation Center

Students: Rachael Dilenschneider, ISE  
Faculty Advisor(s): Dr. Scott Sink  
Industry Sponsor: Ohio Health  
Industry Contact(s):

## 92 Improving Inventory Accuracy

Students: Daniel Garfield, ISE  
Faculty Advisor(s): Dr. Scott Sink  
Industry Sponsor: Sherwin Williams  
Industry Contact(s): Chuck Kletrovets, Bryla Potter

## 93 Improving Order Accuracy and Customer Satisfaction

Students: Andrea Allison, ISE  
Faculty Advisor(s): Dr. Scott Sink  
Industry Sponsor: Donatos  
Industry Contact(s): Travis Howard

- 94 Increasing Process Throughput in Abrasive Wheels Production**  
 Students: Kaylane Robbins, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: Diamond Innovations  
 Industry Contact(s): Michael Mathews
- 95 Labor Utilization Optimization**  
 Students: Joe Kontak, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: METTLER TOLEDO  
 Industry Contact(s): Stephanie Viehman
- 96 Operational Improvement in the Asset Management Process**  
 Students: Gina Manacci, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: The Ohio State University  
 Industry Contact(s): Lisa Plaga
- 97 Optimizing Franchise Value: Improving EBITA Growth Rates & Process Maturity**  
 Students: Eihab Alammar, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: Adham Alammar  
 Industry Contact(s): Adham Alammar
- 98 Order Fulfillment Lead Time Reduction at Donatos Pizza**  
 Students: Stephen Tweel, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: Donatos Pizza  
 Industry Contact(s): Travis Howard
- 99 Overtime and Comp Time Reduction at the Eye and Ear Institute**  
 Students: Sara Vinson, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: The Ohio State Wexner Medical Center  
 Industry Contact(s): Valery Tarver, Sheryl Burtch, Sarah Miller, Dr. Arick Forrest, Wendy Dobie, Heather Kincai

- 100 Quality of Worklife Improvement**  
 Students: Simon William Prasetyo, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: Bron-Shoe  
 Industry Contact(s): Jim Jackson, Robert Kaynes
- 101 Redesign of Non-Nettable Inventory Processes**  
 Students: Ryan Arnold, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: Emerson Network Power  
 Industry Contact(s): Terri Douglas, Aaron Nartker
- 102 Reduction of Changeover Downtime**  
 Students: Michael Bingman, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: Royal Building Products  
 Industry Contact(s): Shannon Stehman, John Mosher
- 103 Reduction of Frequency and Severity of Issues in the Movement of WIP Inventory**  
 Students: Patrick McHugh, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: METTLER TOLEDO  
 Industry Contact(s): Stephanie Viehman
- 104 Reduction of Missing Surgical Documents on the Morning of Surgery**  
 Students: Leslie Weist, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: The Ohio State Wexner Medical Center  
 Industry Contact(s): Heather Kincaid, Jill Treece
- 105 Reengineering Business Development**  
 Students: Amelia Quilon, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: American Bronzing Company  
 Industry Contact(s): Robert Kaynes

- 106 Resource Utilization**  
 Students: Jagjit Singh, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: The Ohio State University: Purchasing,  
 Receiving, Stores and Mail  
 Industry Contact(s): Nathan Andridge
- 107 Risk Priority Number Reduction in the Assisted Move-In Process**  
 Students: Michael Fitzsimons, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: Ohio State Department of Student Life  
 Industry Contact(s): Daren Lehman, Aubrie Smith
- 108 Standardization of Grange Mutual Insurance New Product Development Process**  
 Students: Evan Slavik, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: Grange Mutual Insurance  
 Industry Contact(s):
- 109 Standardizing Hegman Testing Procedures to Reduce Rework at AkzoNobel**  
 Students: Kyle Ley, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: AkzoNobel  
 Industry Contact(s): Casey Shoemaker
- 110 Transportation Routing System**  
 Students: Courtney Stuetzer, ISE  
 Faculty Advisor(s): Dr. Scott Sink  
 Industry Sponsor: National Church Residences  
 Industry Contact(s): Erica Drewry

# Integrated & Systems Engineering

- 111 American Electric Power - Synchrophasors**  
 Students: Sultan Alsaif, ISE; Derek Bernsdorf, ISE;  
 Thadd Burns, ISE  
 Faculty Advisor(s): Dr. Steve Lavender  
 Industry Sponsor: American Electric Power  
 Industry Contact(s): Carlos Casablanca
- 112 Caterpillar Logistics Packaging Table Model Development Project**  
 Students: Matthew Brinkmeier, ISE; Thomas Cheesman, ISE;  
 Yixiao Ding, ISE  
 Faculty Advisor(s): Dr. Steve Lavender  
 Industry Sponsor: Caterpillar Logistics  
 Industry Contact(s): Jeff Slocum, Adam Farmer
- 113 CICMHE Facility Retrofit**  
 Students: Andrea McWhirter, ISE; Terry Tan, ISE;  
 Shannon Kieny, ISE  
 Faculty Advisor(s): Dr. Steve Lavender  
 Industry Sponsor: Ohio State Integrated & Systems Engineering  
 Industry Contact(s): Dr. Jerald Brevick
- 114 DATA Bus Route Expansions in the Polaris Parkway Region**  
 Students: Steven Hwang, ISE; Aaron Jones, ISE; John Minor, ISE  
 Faculty Advisor(s): Dr. Steve Lavender  
 Industry Sponsor: DATA Bus  
 Industry Contact(s): Crystal James
- 115 DB Schenker SKU Consolidation**  
 Students: Kalyaan Rao, ISE; Atikah Adnan, ISE;  
 Jacob Schnieders, ISE  
 Faculty Advisor(s): Dr. Steve Lavender  
 Industry Sponsor: DB Schenker  
 Industry Contact(s): Jeff Weinland

- 116 DB Schenker Two Pallet Project**  
 Students: Chris Treiss, ISE; Muhammad Mod-Rokbi, ISE; Anis Md-Hashim, ISE; Nur Misrin, ISE  
 Faculty Advisor(s): Dr. Steve Lavender  
 Industry Sponsor: DB Schenker  
 Industry Contact(s): Jeff Weinland
- 117 DB Schenker: Two-Pallet Jack Vs. Single Pallet Jack**  
 Students: Nur Misrin, ISE  
 Faculty Advisor(s): Dr. Steve Lavender  
 Industry Sponsor: DB Schenker  
 Industry Contact(s): Jeff Weinland
- 118 Developing Ergonomic Solutions for Cracker and Cookie Line**  
 Students: Christopher Schwinkendorf, ISE; Stephen Sparks, ISE; Rustyn Stoner, ISE  
 Faculty Advisor(s): Dr. Steve Lavender  
 Industry Sponsor: Kroger Bakery  
 Industry Contact(s): Bridget Andrews
- 119 Reducing Physical Demands on Employees When Handling Linen Bag**  
 Students: Mary McCarroll, ISE; Diego Robledo-Garcia, ISE; Mohd Ahmad-Jafri, ISE  
 Faculty Advisor(s): Dr. Steve Lavender  
 Industry Sponsor: The Ohio State Wexner Medical Center  
 Industry Contact(s): Ray Welty
- 120 Transportation at the Association for the Developmentally Disabled**  
 Students: Courtney Kasuboski, ISE; Jason McNamara, ISE; David Silvashy, ISE  
 Faculty Advisor(s): Dr. Steve Lavender  
 Industry Sponsor: The Association for the Developmentally Disabled  
 Industry Contact(s): Sara Eppard, Jesse Roberts
- 121 AEP Health Asset Monitoring Solution**  
 Students: Renee Ulstad, ISE; Trevaun Wiley, ISE; Raymond Sharp, ISE  
 Faculty Advisor(s): Dr. Steve Lavender  
 Industry Sponsor: America Electric Power  
 Industry Contact(s): Kyle Phillips
- 122 Improving the Efficiency and Ergonomic Impact of Water Transportation**  
 Students: Andrew Lien, ISE; Ryan Patton, ISE; Aubrey Shapiro, ISE; Lacey Shearer, ISE  
 Faculty Advisor(s): Dr. Steve Lavender  
 Industry Sponsor: Pack H2O  
 Industry Contact(s): Tony Somers
- 123 Reconfiguration of Horton Emergency Vehicles Assembly Layout to Prevent Missed Takts**  
 Students: Michael Criss, ISE; Cody Scharenberg, ISE; Michelle Stroup, ISE  
 Faculty Advisor(s): Dr. Steve Lavender  
 Industry Sponsor: Horton Emergency Vehicles  
 Industry Contact(s): Ricky Loar
- 124 Waste Reduction in Material Handling at Whirlpool Marion**  
 Students: Michael Deegan, ISE; Ethan Hannah, ISE; Matt Stuckey, ISE  
 Faculty Advisor(s): Dr. Steve Lavender  
 Industry Sponsor: Whirlpool Marion  
 Industry Contact(s): Reinaldo Milan
- 125 OSU Medical Center Cart Design Project**  
 Students: Tim Hollenbeck, ISE; Kyle Hermiller, ISE; Megan Scott, ISE  
 Faculty Advisor(s): Dr. Steve Lavender  
 Industry Sponsor: The Ohio State Wexner Medical Center  
 Industry Contact(s): Janet Collins, Marc Dutro



# Computer Science Engineering III

## 126 **Effective Capacity Planning of the Virtual Environment Using Enterprise Architecture**

Students: Arati Mahimane, CSE  
Faculty Advisor(s): Dr. Jay Ramanathan  
Industry Sponsor: Nationwide Insurance  
Industry Contact(s): Zahid Hossain

## 127 **The Impact of Administrative Policies Policies on Dynamically Composed Workflows in the Healthcare Domain**

Students: Andee Peabody, CSE; Gerrit Kitts, CSE  
Faculty Advisor(s): Dr. Jay Ramanathan  
Industry Sponsor: N/A  
Industry Contact(s): N/A

## 128 **Surfacing Personas from Enterprise Social Media to Boost Engagement**

Students: Ramiya Venkatachalam, MS CSE  
Faculty Advisor(s): Dr. Jay Ramanathan  
Industry Sponsor: Nationwide Insurance  
Industry Contact(s): Bruce Craig, Tara Paider

## 129 **Complexity in Enterprise Architectures**

Students: Heesung Lee, CSE; Akanksha Lonhari, CSE  
Faculty Advisor(s): Dr. Jay Ramanathan, Dr. Rajiv Ramnath  
Industry Sponsor: Nationwide Insurance  
Industry Contact(s): Zahid Hossain

## 130 **Oral Reading Fluency**

Students: Thomas Lynch, PHD CSE  
Faculty Advisor(s): Dr. Jay Ramanathan, Dr. Rajiv Ramnath, Gwendolyn Cartledge, Eric Fosler-Lussier  
Industry Sponsor: Institute of Education Services  
Industry Contact(s): Rajiv Ramnath, Gwendolyn Cartledge

## 131 **A Framework for Academic Collaboration**

Students: Mitesh Kanjariya, CSE  
Faculty Advisor(s): Dr. Jay Ramanathan  
Industry Sponsor: Dr. Caroline Wagner  
Industry Contact(s): Dr. Caroline Wagner

## 132 **Impact Driven Regression Test Selection for Mainframes**

Students: Abhishek Dharmapurikar, CSE  
Faculty Advisor(s): Dr. Jay Ramanathan  
Industry Sponsor: Nationwide Insurance  
Industry Contact(s): Carmen DeArdo

## 133 **GeneAnn**

Students: Matt Seffernick, CSE; Kripa Durgaprasad, CSE; Jahi Crouch, CSE; Raja Tummala, CIS; Cheng Guo, CSE; Brad Chambers, CIS  
Faculty Advisor(s): Dr. Perumal Ramasamy  
Industry Sponsor: The Ohio State Wexner Medical Center  
Industry Contact(s): Dr. Kun Huang, Andrew Yates

## 134 **Women's Heart Health**

Students: Dmitriy Pilipenko, CSE; Alex Pelletier, CSE; Brandon Smith, CIS; Deven Pandya, CSE; Zack Hall, CSE  
Faculty Advisor(s): Dr. Perumal Ramasamy  
Industry Sponsor: The Ohio State Wexner Medical Center  
Industry Contact(s): Dr. Martha Gulati, Dr. Lise Worthen-Chaudhuri

## 135 **SMART Web Application Framework**

Students: SaranyaDevi Ganesan, MS CSE  
Faculty Advisor(s): Dr. Rajiv Ramnath  
Industry Sponsor: Ohio State Nursing School  
Industry Contact(s): Dr. Vicki Von Sadovszky

**136 Fingerprinting Building Spaces for Indoor Navigation**

Students: Gordon Yen, MS ECE  
Faculty Advisor(s): CETI  
Industry Sponsor: Dr. Rajiv Ramnath  
Industry Contact(s): N/A

**137 Drupal Portals at Ohio Supercomputer Center**

Students: Piyush Diwan, PhD CSE; Yixue Li, MS CSE  
Faculty Advisor(s): Dr. Rajiv Ramnath  
Industry Sponsor: Ohio Supercomputer Center  
Industry Contact(s): Dr. Dave Hudak

**138 Computerized Rehabilitation Forms**

Students: David Spetz, CIS; Alex Perry, CSE; Matthew Bear, CIS; Abdulwasi Abdulkarim, CSE; Abdirashid Hassan, CSE; Christopher Ashton, CSE  
Faculty Advisor(s): Dr. Perumal Ramasamy  
Industry Sponsor: The Ohio State Wexner Medical Center  
Industry Contact(s): Lise Worthen-Chaudhari

**139 Economic Impact of ACA Expansion for Ohio**

Students: CSE  
Faculty Advisor(s): Anand Desai  
Industry Sponsor: John Glenn School of Public Affairs  
Industry Contact(s): Anand Desai

**140 Risk Assessment**

Students: Sudheer tumu, CSE; Rohit Manaktala, CSE  
Faculty Advisor(s): Dr. Jay Ramanathan  
Industry Sponsor: Nationwide Insurance  
Industry Contact(s): Dr. Jay Ramanathan

**141 Knowledge Management at the Help Desk: Enhancing Responsiveness and Automation**

Students: Kayhan Moharreri, CSE; Naman Mody, CSE; Prasad bhandari, CSE  
Faculty Advisor(s): Dr. Jay Ramanathan  
Industry Sponsor: Nationwide Insurance  
Industry Contact(s): N/A

**142 MyIM**

Students: Hyunjeong Yoo, CSE; Yu Qiao, CSE  
Faculty Advisor(s): Dr. Jay Ramanathan  
Industry Sponsor: The Ohio State Wexner Medical Center, Integrity Health Partners  
Industry Contact(s): James Paat, Ann Scale, Lise Worthen-Chaudhar

**143 Analysis and Categorization of Multi-Touch 2D Gesture Recognition Techniques**

Students: Aditi Singhal, CSE  
Faculty Advisor(s): Dr. Jay Ramanathan, Dr. Rajiv Ramnath  
Industry Sponsor: Micro Industries  
Industry Contact(s): N/A

**144 OCLC Library Video Scanning Project**

Students: Sudheer Tumu, CSE  
Faculty Advisor(s): Dr. Jay Ramanathan, Dr. Rajiv Ramnath  
Industry Sponsor: Dr. Rajiv Ramnath, Mike Teets, OCLC  
Industry Contact(s): Dr. Rajiv Ramnath

**145 Citra**

Students: Alex Notwell, CSE; Michelle Rush, CSE; Matthew Meade, CSE  
Faculty Advisor(s): Dr. Perumal Ramasamy  
Industry Sponsor: Dr. Peter Rogers  
Industry Contact(s): Dr. Peter Rogers

# Engineering Capstone Design Program

The College of Engineering at The Ohio State University is a leader in creating and implementing substantive industry experiences for undergraduate engineering students. Our engineering programs have a rich history of using projects developed and sponsored by industry for student capstone design courses. All programs within the College of Engineering require a capstone design experience for graduation. The capstone design course integrates design skills and engineering practice with a focus on authentic design challenges presented and supported by industry partners and faculty. The EEIC fosters industry partnerships with The Ohio State University through the EEIC Multidisciplinary Capstone Design program and through all engineering departments by connecting companies with appropriate programs.

For more information, visit <http://eeic.osu.edu/capstone> or contact:

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# Engineering Education Innovation Center

The College of Engineering is recognized nationally for its commitment to outstanding undergraduate education through our First-Year Engineering Program; providing practical, hands-on engineering experience through project-based design courses; providing opportunities for undergraduate research experiences; and our individualized attention to undergraduate students to facilitate their academic and professional success. To further enhance efforts in providing the highest quality engineering education, Ohio State established the Engineering Education Innovation Center in May 2007 with the mission of enriching the student experience and strengthening the academic credentials of our undergraduates. Simultaneously, the Honda Professorship for Engineering Education was established to supply leadership to the new Center.

The EEIC is the focal point for the College's innovative instructional programs, building upon our outstanding reputation for and commitment to innovative undergraduate education. The EEIC provides academic, personal, and professional activities, enriching the undergraduate experience inside and beyond the classrooms. The EEIC also created new courses and programs, and strengthened existing ones to empower students for an ever-expanding range of career and entrepreneurship opportunities.

The Performance Goals of the EEIC include:

- Promotion, innovation, and creativity in all of our undergraduate programs
- Offering multidisciplinary courses and opportunities for students that enhance experience
- Fostering scholarship of teaching and learning across the college

For more information, visit <http://eeic.osu.edu/> or contact:

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The Blackwell

**The committee would also like to show its appreciation for the students who are involved with the projects displayed today.**

# Engineering Capstone Design Showcase Committee

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