
WARRIOR STRONG
WAYNE STATE
UNIVERSITY
Wayne

Collaborative Online International Learning (COIL)

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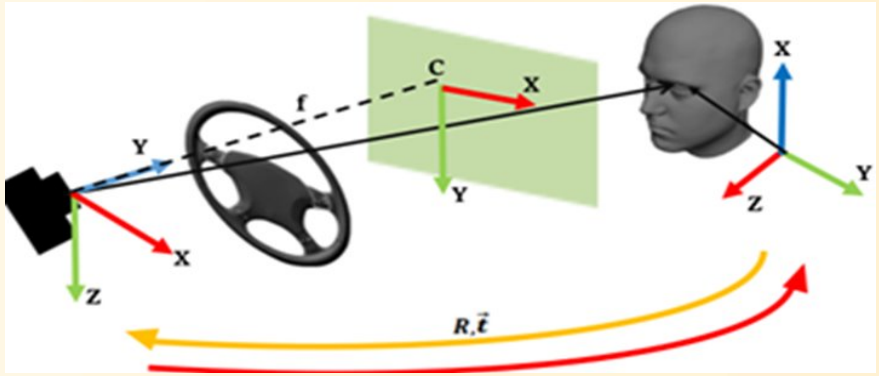
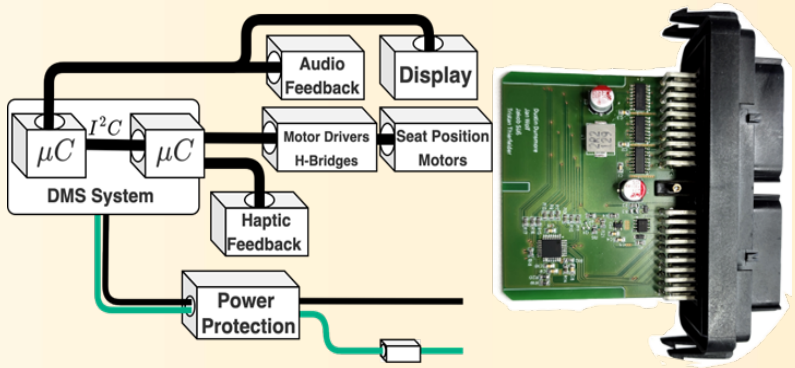
Department of Electrical and Computer Engineering
College of Engineering

COIL 2022
A Real-Time Automotive Safety System Based on Advanced AI Facial Detection Algorithms

- Safety system for monitoring driver drowsiness/distraction
- Utilizes infrared sensors and Artificial intelligence (AI)
- Primary warnings: vibrating car seat and audible alerts
- Significantly reduces car accidents





Facial Landmark detection

Head Pose Detection

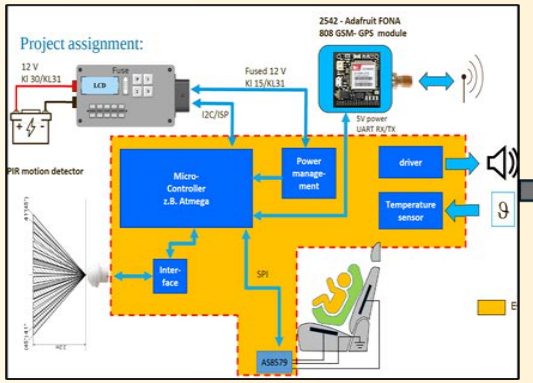
COIL 2023
An Intelligent Sensor-Driven Solution for Preventing Child Heatstroke in Hot Vehicles

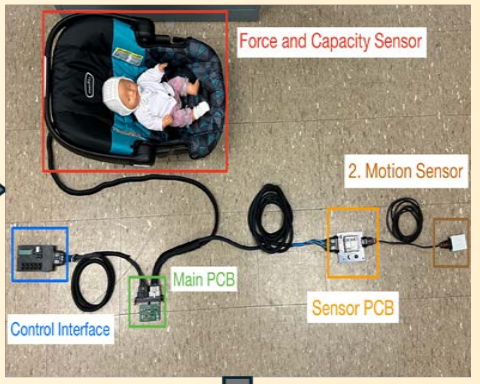
Creation of child heatstroke prevention device

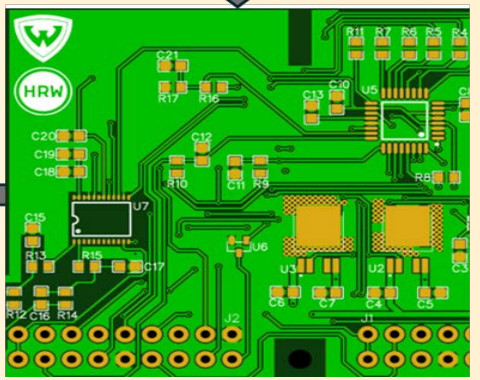
Utilizes infrared sensors and Artificial intelligence (AI)

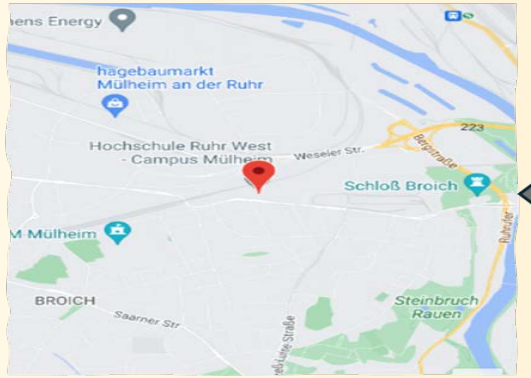
Monitors occupancy, temperature, and child's respiratory rate

Utilizes intelligent algorithms and GPS for location sharing









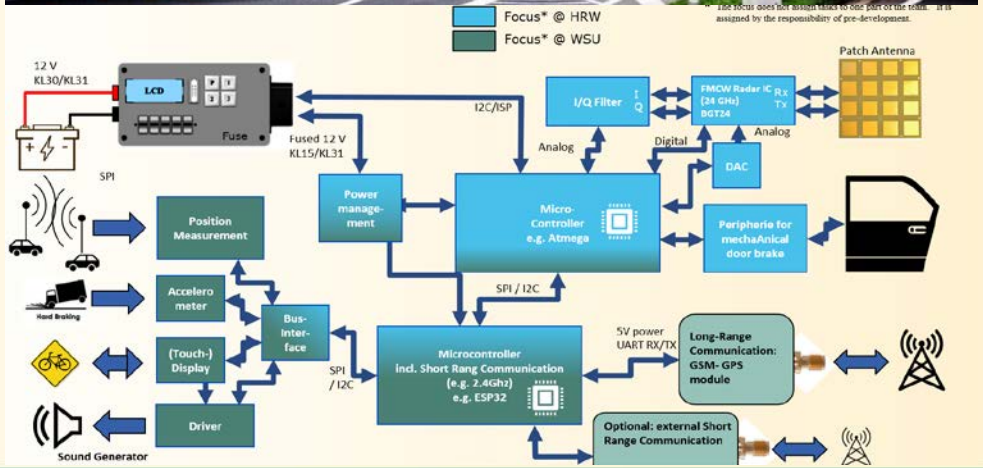
COIL 2024
Empowering Intelligent Transportation Systems with C-V2X Safety Systems

Developing an Intelligent Transportation System (ITS) using Cellular Vehicle-to-Everything (C-V2X)

C-V2X enables vehicle communication with each other and road users

Safety benefits include:

- Accident prevention
- Traffic management
- Road hazard notifications

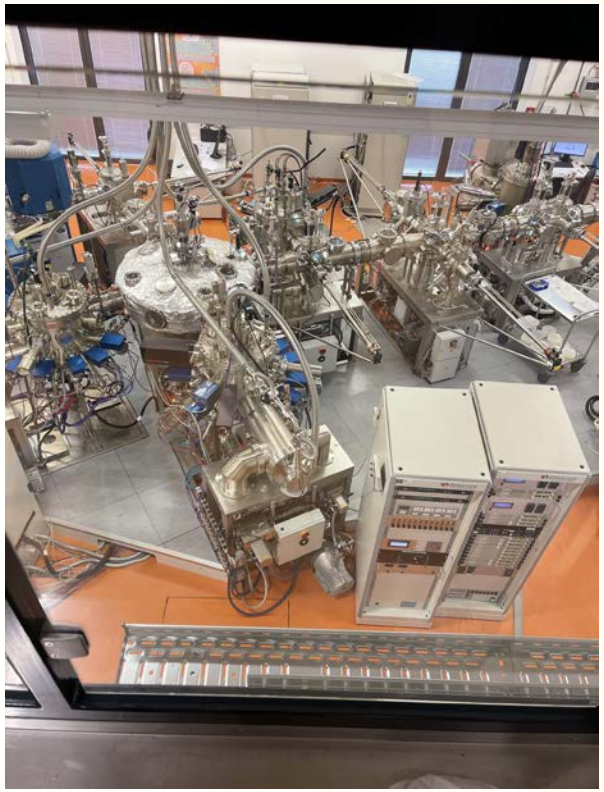


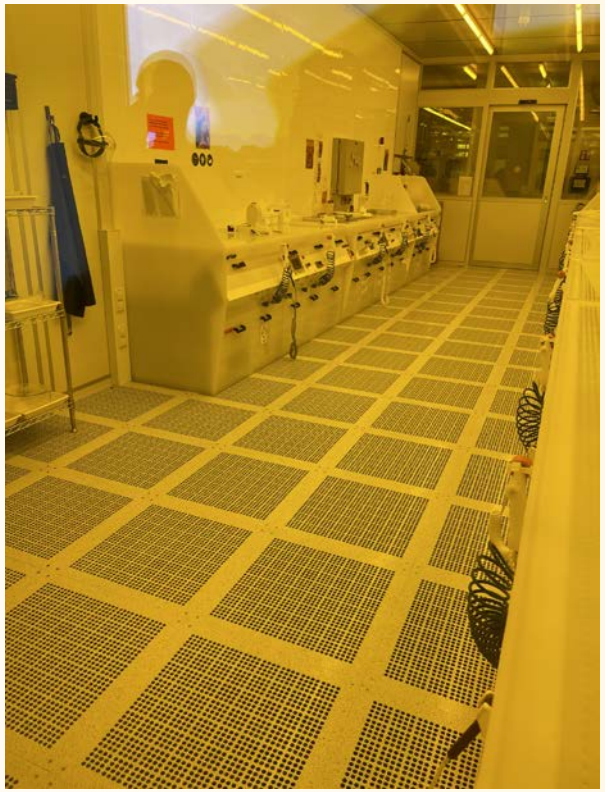
The first Milestone at HRW
in the presence of German Automotive Industry Leaders

COIL 1

COIL 2

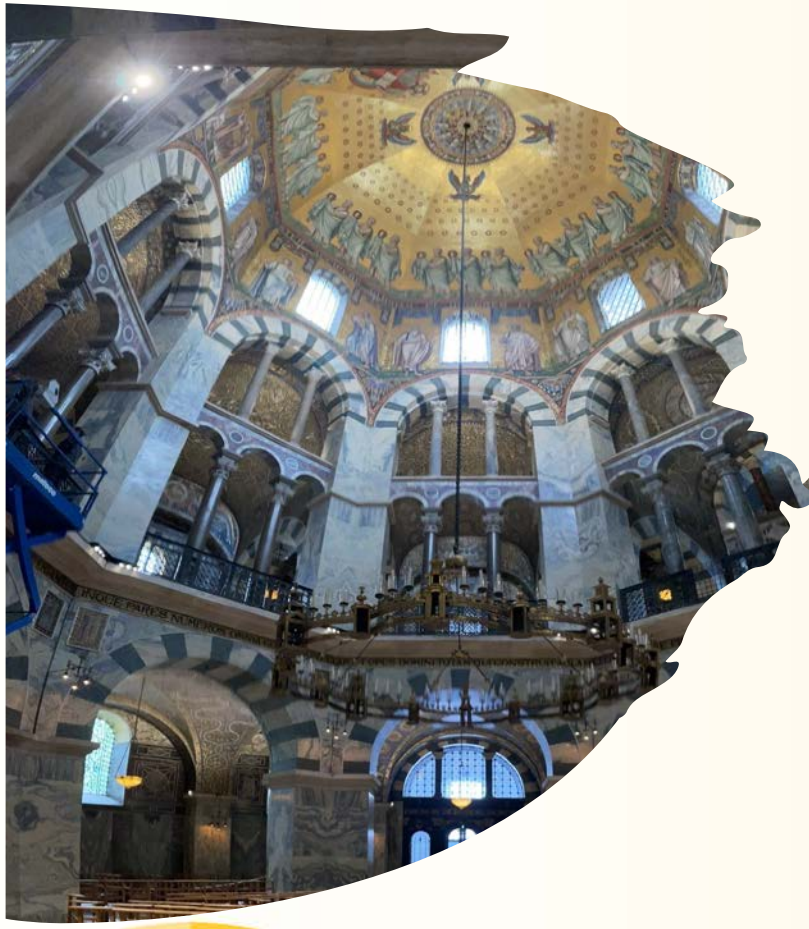
Unveiling Innovations: A Journey through HRW Laboratories



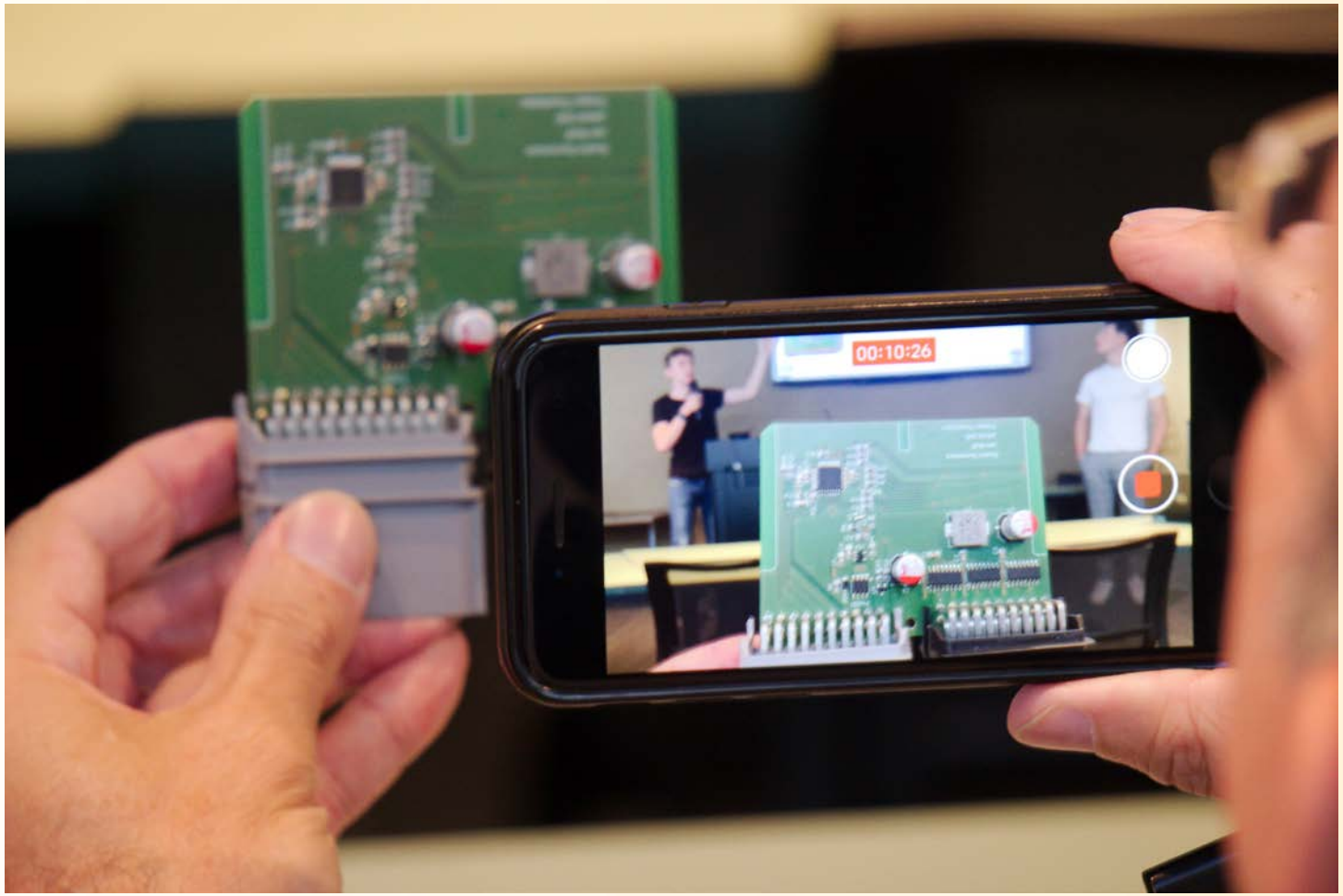


A COIL Project Journey: Exploring Siemens Energy

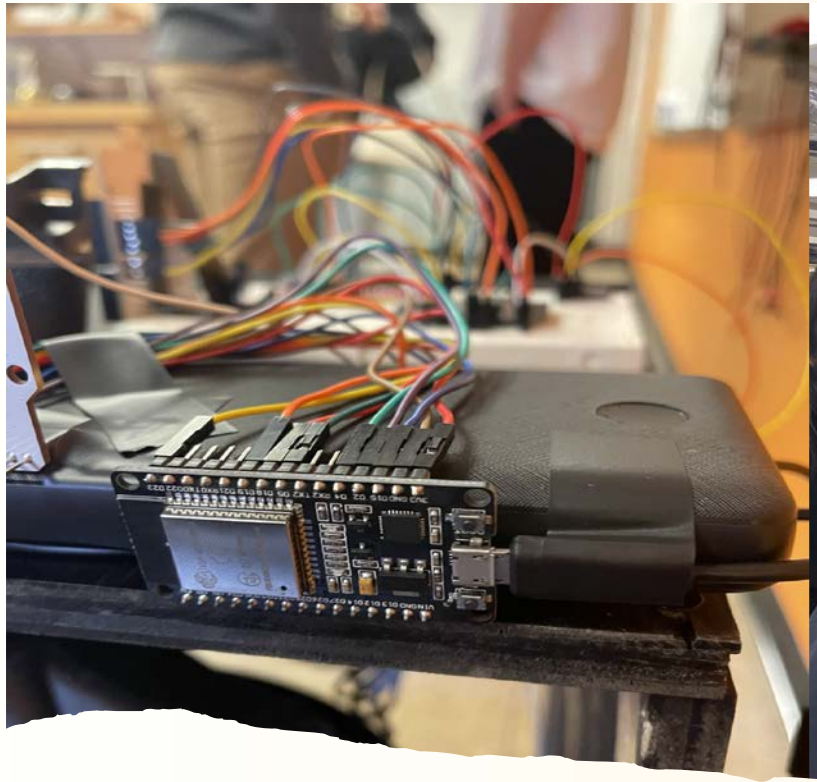
Historical Sites Around HRW



The Virtual Second Milestone Session



Collaborative Endeavors: WSU and HRW Teams at WSU Laboratories



Third Milestone: Final phase at WSU in the presence of automotive industry leaders from both countries

COIL 1

Mercedes-Benz

RENESAS

Infineon

HELBAKO ELECTRONICA

COIL 2

COIL Projects Publications

- **First COIL Project:**

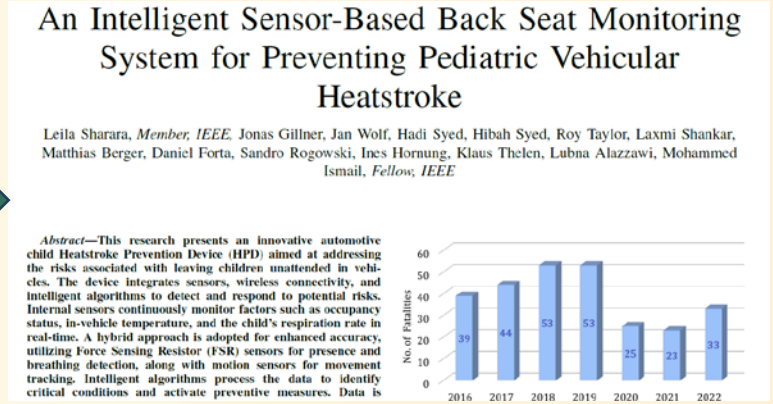
  A Real-Time Automotive Safety System Based on Advanced AI Facial Detection Algorithms. February - July 2022.

✓ **Published in IEEE Transactions on Intelligent Vehicles.**

- **Second COIL Project:**

  An Intelligent Sensor-Based Back Seat Monitoring System for Preventing Pediatric Vehicular Heatstroke. February -July 2023.

✓ **Submitted to IEEE Transactions on Circuits and Systems.**

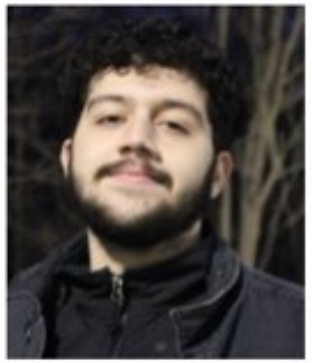


COIL Team Certificate of Participation Distribution Event Hosted by Department Chair

COIL Team Members' Success

COIL Team Member

Quality and Test manager



Louis Mansour

Posts by Louis

Louis Mansour • 1st

Associate Product Quality Engineer (EPQ)

8mo •

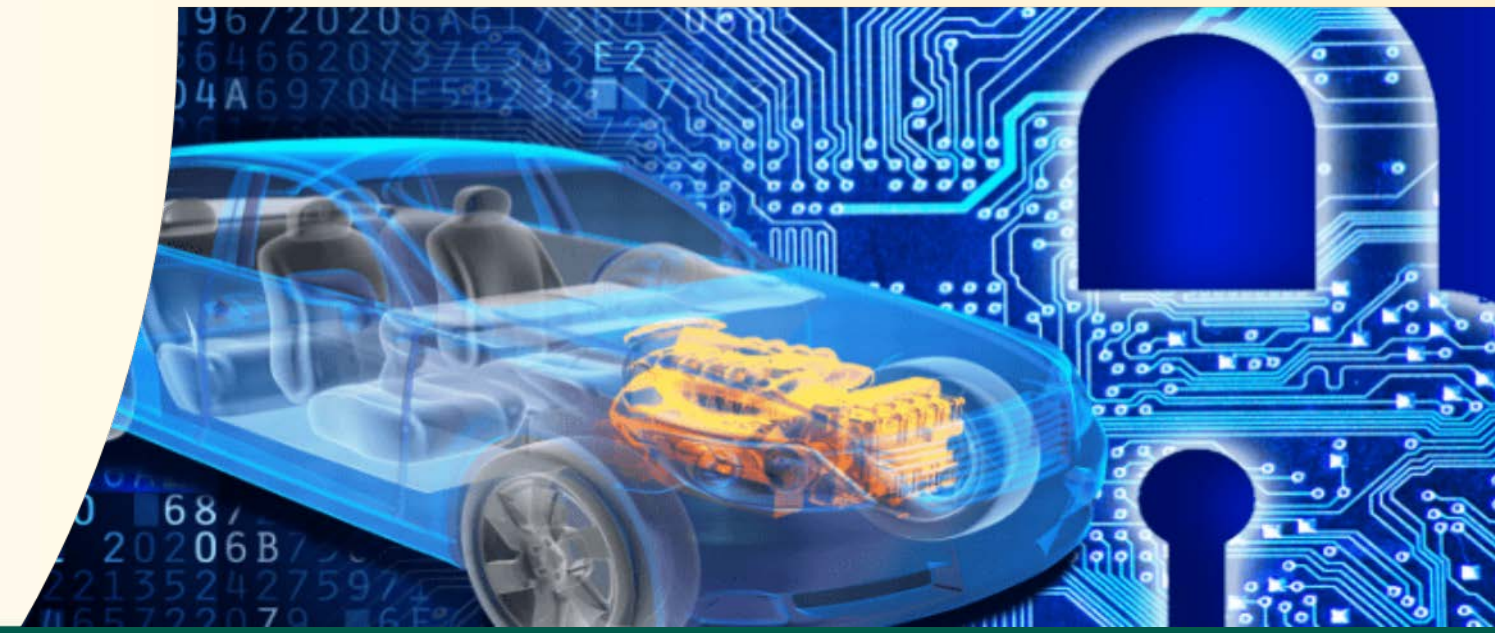
I'm happy to share that I recently started a new position as Associate Product Quality Engineer at Bosch USA!

Louis Mansour (He/Him) • 1:39 PM

Thank you Dr. Alazzawi! It was the COIL project which introduced me to ADAS using DMS, and I'm excited to continue working with these technologies!

High School Students Trial COIL Project During Recruitment Visit to WSU

Thank you!

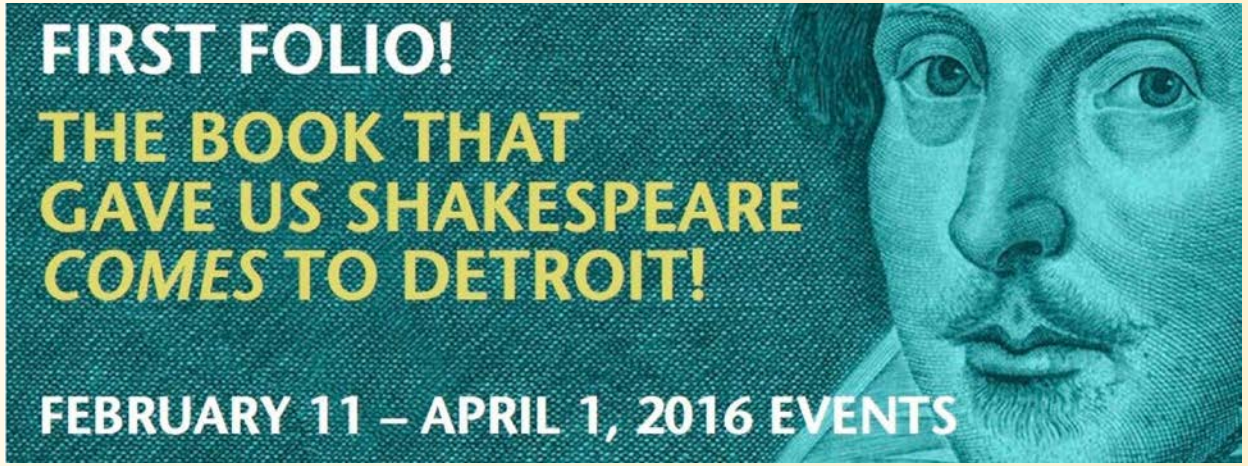


College to Career & the Humanities

Jaime Goodrich
Professor, Department of English
Director, Humanities Center

Rex Wagner
Double Major, English and History

Story #1: Service-Learning

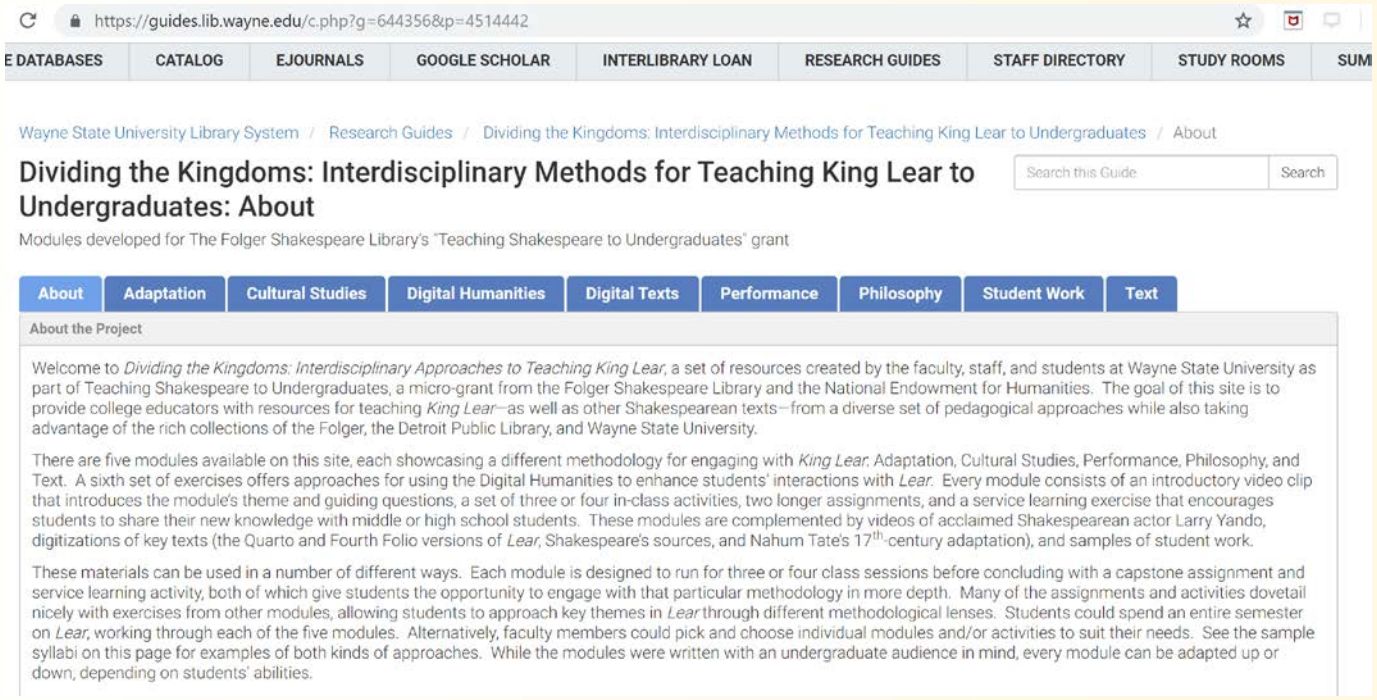


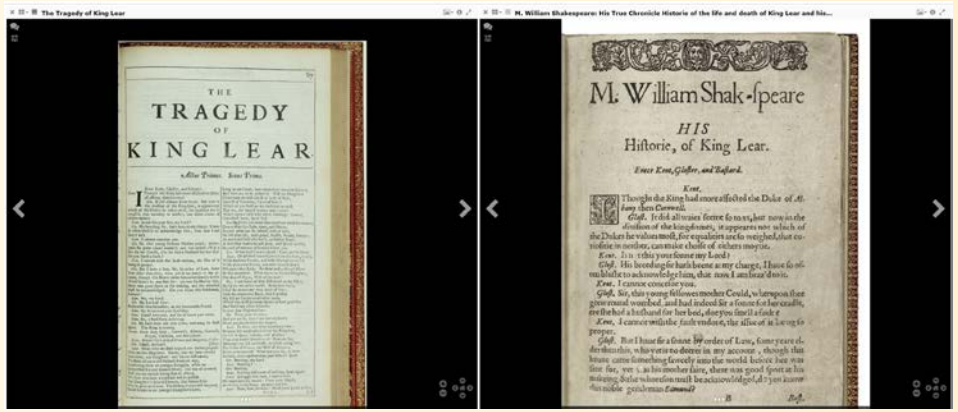
WAYNE STATE

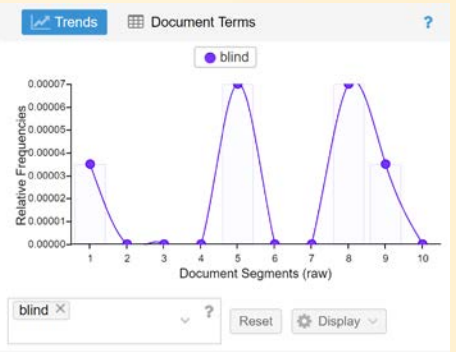
DETROIT PUBLIC LIBRARY

DIA DETROIT INSTITUTE OF ARTS

Micro-Grant: Teaching Shakespeare to Undergraduates







Shakespeare and Service-Learning

Department Outcome: Cass Tech Partnership

Student Outcomes: Service-Learning

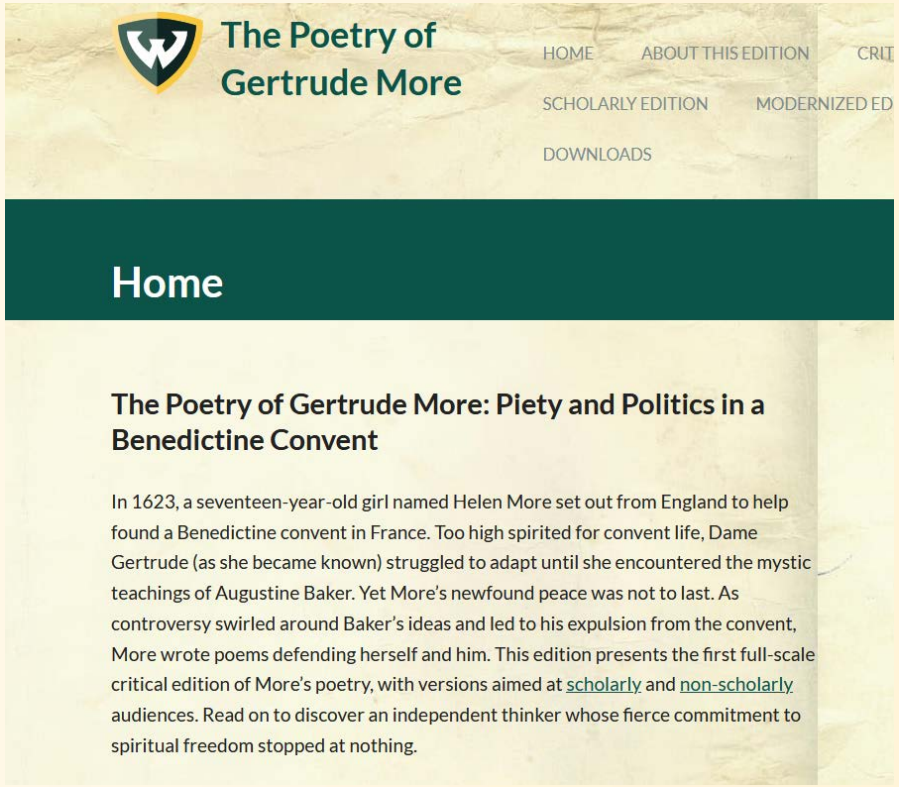
- Students gain professional skills in…
  - Developing a lesson plan
  - Designing documents
  - Communicating complex ideas through speaking and writing
  - Working as a team
  - Leading group discussions
  - Mentoring others
  - Managing a classroom
  - Managing a team

Sample Feedback

- **Student:** This method laughs in the face of traditional exams. Instead of evaluating memorization or study skills, you evaluated applicable knowledge. Can we teach these kids to read Shakespeare? Yes, because we have studied and dissected Shakespeare under conditions that prepared us for this.

- **Teacher:** Your students were outstanding! I can't begin to tell you how much I appreciate the energy, passion, and care your students offered mine. They made the lessons engaging and successfully managed to have my students not only learn the basics of three Shakespearean genres (comedy, tragedy, romance) but they offered a challenging lesson for my students on how to adapt and create plots that meet specific genre conventions.

Story #2: Editing

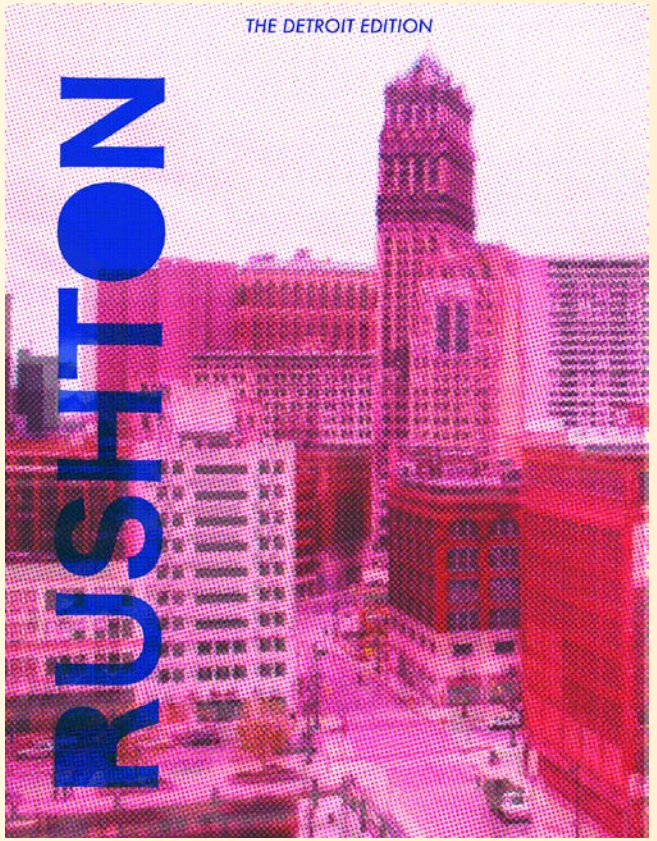


Department Outcome: Professional BA Concentration

Editing, Publishing, and Writing Concentration

Professional Editing		
ENG 3250	Professional Editing	3
Publishing Practicum		
ENG 5695	Publishing Practicum	3
Internship Practicum		
ENG 5820	Internship Practicum	3

Rushton Journal of Undergraduate Humanities Research



Student Outcomes: Editing

- Students gain professional skills in…
  - Editing
  - Proofreading
  - Creating editorial designs
  - Designing documents
  - Publishing print and digital texts
  - Coding
  - Working as a team
  - Communicating complex information in writing

College to Career: Removing Obstacles

- Barriers to community-engaged learning:

- Finding a community partner or hands-on opportunity
- Designing the curriculum
- Overcoming logistical hurdles
  - Getting students to and from the site
  - Navigating students' schedules
  - Finding resources ($, expertise)

Thank you!