



COLLEGE OF ENGINEERING & COMPUTER SCIENCE
UNIVERSITY OF MICHIGAN-DEARBORN

OPEN LAB DAY

SEPTEMBER 21, 2023

11:00AM - 1:00PM

Panelists

MANSI GIRDHAR

PhD in Electrical and Computer Engineering
Power Simulation Lab

Research Focus: Current research is focused on cybersecurity of the substation automation system using the cyber-resilience properties of SDN switches in the network. I am also working on building a testbed consisting of a real-time simulator (opal-rt), SEL relays, GPS clock, omicron, ABB scada system, etc.

GANDHIMATHI PADMANABAN

PhD in Industrial and Systems Engineering
HFES Lab

Research Focus: Application of machine learning models to predict aggressive driver behavior on roads.

ZIBA PARSONS

PhD in Computer and Information Sciences
Machine Intelligence and Statistical Computing Lab

Research Focus: Federated Learning infrastructure and its privacy concerns.

DHIA ELHAQ RZIG

PhD in Computer and Information Science
Software Evolution and Maintenance Lab

Research Focus: DevOps and CI in the context of ML-based projects

G.A.M.E. LAB [CIS]

PI: Bruce Maxim | ELB 2046

Working on accessibility and performance concerns for VR/AR applications. Focusing on using VR to build empathy with the problems faced by wheel chair users in both sports and every day life. Also working on ways to allow users with special needs to experience new things by customizing VR/AR applications to meet their needs.

DATA SCIENCE/MANAGEMENT RESEARCH LAB [CIS]

PI: Qiang Zhu & Niccolo Meneghetti | CIS 205

The students work in the broad areas of data science and data management, with primary focus on data integration, spatio-temporal databases, autonomous databases, probabilistic databases, data mining, statistical relational learning, and uncertain data management

DATA-DRIVEN SECURITY & PRIVACY LABORATORY [CIS]

PI: Birhanu Eshete | CIS 205

DSPLab@UM-Dearborn focuses on three areas: trustworthy machine learning (ML), cyber-crime analysis, and cyber threat intelligence. In trustworthy ML, we focus on making ML models robust against adversarial manipulations such as poisoning, evasion, and inference. In cyber-crime analysis, we focus on measurement, detection, and reconstruction. In cyber threat intelligence, our focus is on systematic curation, characterization and measurement.

SOFTWARE MAINTENANCE AND EVOLUTION LAB [CIS]

PI: Foyzul Hassan | CIS 226

DevOps for Machine Learning, Automated Testing of VR

PERVASIVE COMPUTING LAB [CIS]

PI: Zheng Song | CIS 217

The Pervasive Computing Lab is a hub of advanced research in cloud, mobile, edge, and vehicular computing. Our work encompasses the creation of efficient systems and innovative applications within pervasive computing and IoT. Underpinning our efforts is a profound belief that technology must be harnessed not merely for its inherent fascination, but for its transformative potential to substantially elevate the quality of human life and societal well-being.

ROBOTICS LAB [ECE]

PI: Alireza Mohammadi | ELB 3038

Motion control and path planning algorithms for collaborative robots/hyper-redundant robotic mechanisms

INFORMATION SYSTEMS, SECURITY, AND FORENSICS LAB [ECE]

PI: Hafiz Malik | ELB 2381

1. Robust Deepfake Detection
2. Automotive Cybersecurity
3. Cyber-Physical System Security
4. Sensor Security
5. Biometric Security

POWER ELECTRONICS LAB [ECE]

PI: Mengqi Wang | ELB 1032

Development of power electronics converters and inverters, including modeling, simulation, and hardware implementation

INTELLIGENT SYSTEMS LAB [ECE]

PI: Yi Lu Murphey | HPEC 1230

- Identification of cognitive decline and dementia, funded by NIH. Collect everyday driving trips, investigate and implement data mining and machine learning technologies for accurate prediction of everyday driving behaviors and physiological responses
- Exploring the use of deep learning neural networks to improve dementia detection: automating coding of the Clock-Drawing Test.

POWER SYSTEM LABS [ECE]

PI: Xuan Zhou | ELB 1024

Battery management system design, Battery Workforce Challenge Student Competition, Battery modeling and control

BIO INSPIRED MACHINE INTELLIGENCE [ECE]

PI: Jaerock Kwon | ELB 3038

Bio-inspired control and perception systems for mobile robots and intelligent vehicles. Machine learning for advanced mobilities. Hardware implementation and simulations for robotic cars.

IES LAB [ECE]

PI: Van Hai Bui | ELB 1026

We are currently engaged in research across various topics in power and energy systems, encompassing areas such as energy management systems, AI/ML-based power and energy system operations, prediction models for renewable energy sources, power outage analysis, optimization techniques, deep reinforcement learning, and deep learning.

FENG GROUP [IMSE]

PI: Fred Feng | HPEC 1000

We focus on advancing sustainable, active, and equitable transportation modes through data-driven insights. Find more about our group at <https://fenggroup.org/>

HUMAN FACTORS AND EMERGING TECHNOLOGIES LAB [IMSE]

PI: Shan Bao | HPEC 1252

We focus on applying statistical and data mining techniques to analyze and model driver behavior, along with other road users' when they interact with new emerging technologies and systems under variety of dynamic environment.

HUMAN FACTORS LAB [ME]

PI: Amanda Esquivel | ELB 3064

Currently we are examining the use of wearable sensors to track loading cycles that are potentially dangerous to the ACL. We are also examining the effects of fatigue on landing mechanics in dancers and other athletes.

MECHANICAL VIBRATION AND ACOUSTIC LAB [ME]

PI: Rafael Ruiz | ELB 1071

Testing different materials to understand the wave propagation through them

DIGITAL MANUFACTURING LAB [ME]

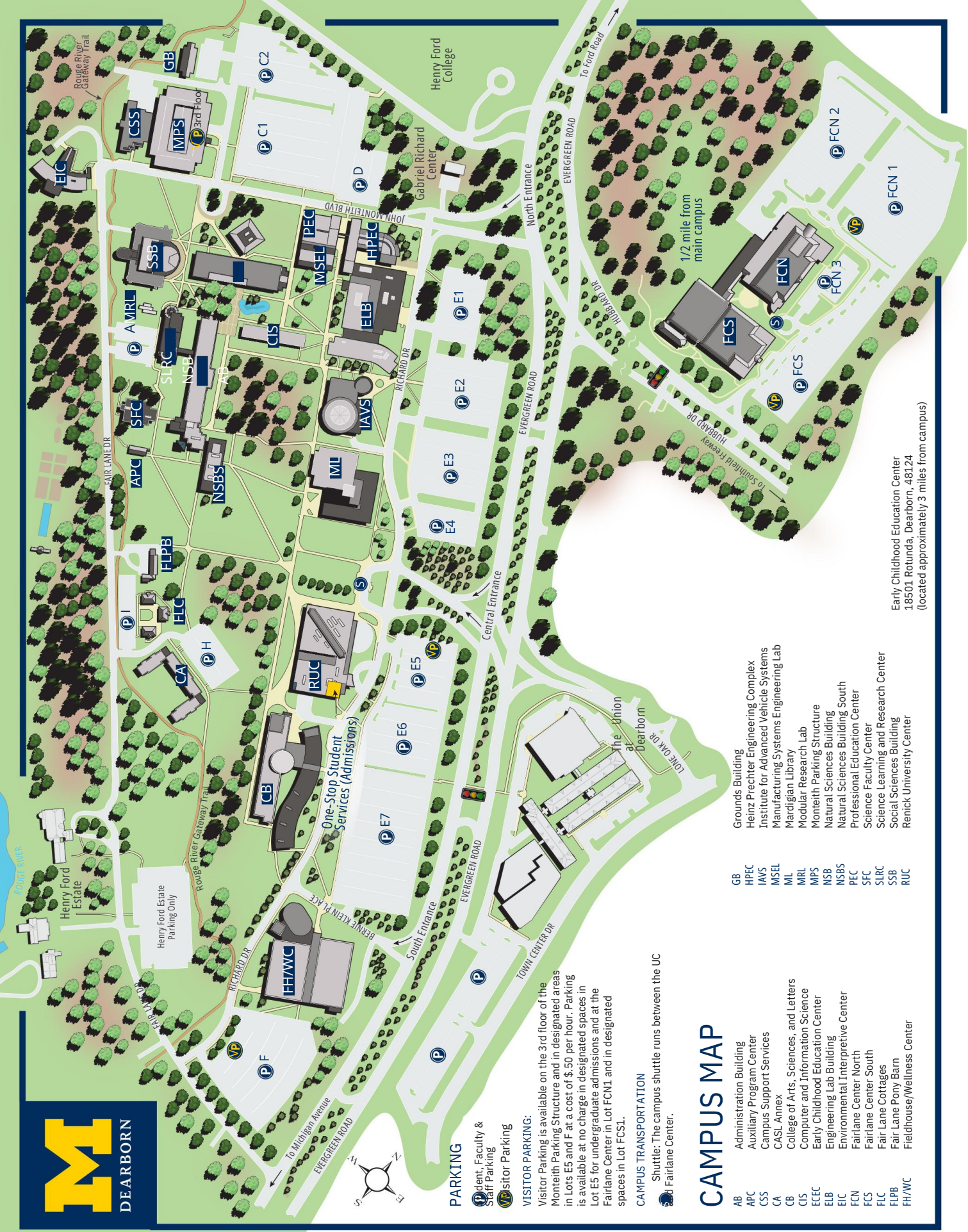
PI: Christopher Pannier | ELB 1220

We are addressing smart and sustainable manufacturing challenges. We have projects on materials development for metal additive manufacturing, collaboration between digital manufacturing tools, recycling polymers in 3D printing, and process control in additive manufacturing.

COMBUSTION AND ENERGY RESEARCH LAB [ME]

PI: Doohyun Kim | ELB 1416

The overarching goal of our research group is to create more efficient and cleaner energy conversion processes by exploring their fundamental physics. We are in the process of establishing a state-of-the-art engine testing facility and developing a 3D CFD model of the engine. These tools will enable us to investigate critical energy-related topics and to generate insights for a more sustainable energy usage scenario.



PARKING

- Ident, Faculty & Staff Parking
- Visitor Parking

VISITOR PARKING:

Visitor Parking is available on the 3rd floor of the Monteith Parking Structure and in designated areas in Lots E5 and F at a cost of \$.50 per hour. Parking is available at no charge in designated spaces in Lot E5 for undergraduate admissions and at the Fairlane Center in Lot FCN1 and in designated spaces in Lot FCS1.

CAMPUS TRANSPORTATION

- Shuttle: The campus shuttle runs between the UC and Fairlane Center.

CAMPUS MAP

- AB Administration Building
- APC Auxiliary Program Center
- CSS Campus Support Services
- CA CASL Annex
- CB College of Arts, Sciences, and Letters
- CIS Computer and Information Science
- ECCE Early Childhood Education Center
- ELB Engineering Lab Building
- BIC Environmental Interpretive Center
- FCN Fairlane Center North
- FCS Fairlane Center South
- FLC Fair Lane Cottages
- FLP Fair Lane Pony Barn
- FH/WC Fieldhouse/Wellness Center

- GB Grounds Building
- HPEC Heinz Prechter Engineering Complex
- IAVS Institute for Advanced Vehicle Systems
- MSEL Manufacturing Systems Engineering Lab
- ML Mardigan Library
- MRL Modular Research Lab
- MPS Monteith Parking Structure
- NSB Natural Sciences Building
- NSBS Natural Sciences Building South
- PEC Professional Education Center
- SFC Science Learning and Research Center
- SLRC Social Sciences Building
- SSB Renick University Center
- RUC

Early Childhood Education Center
18501 Rotunda, Dearborn, 48124
(located approximately 3 miles from campus)