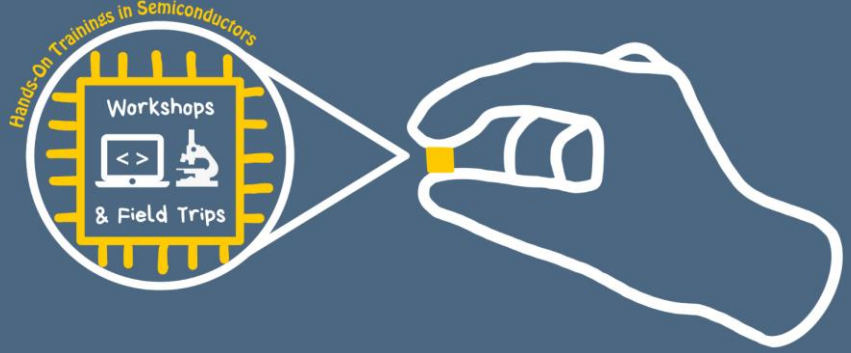
Hands-On Trainings In Semiconductors

April 17, 2025
MODAC Meeting
Emily Johnson - Project Manager



Purpose of presentation:

- Introduce HOTIS
- Discuss program benefits
- Explore exclusive sessions for community colleges

What is HOTIS?

- Developed by U-M faculty engaged in semiconductor research, sponsored by MEDC (Michigan Economic Development Corporation)
- For community college and high school students
- Workshops and group events hosted monthly during the academic year
- Two workshops currently available
  - Embedded AI Systems
  - Intro to Metrology

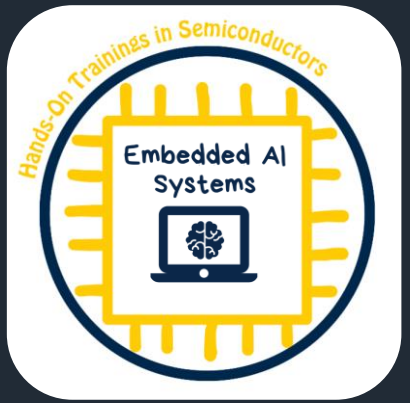
Workshop Logistics

- Cost: $25 per person, $20 if group sessions
- Timing and location
  - U-M North Campus
  - 8 hours, either in one session or over the course of two days
- Group size: 10–20 students
- U-M provides: labs, instructors, materials, lunch (if applicable)

Embedded AI Systems

Learn the fundamentals of the computer hardware and software that make up AI!

- Lecture Highlights
  - Explore the evolution of computing from early machines to modern desktops to Artificial Intelligence
  - Discover key ideas in processor design and current trends like GPUs & AI accelerators
- Hands-On Activities
  - Build and program an embedded Arduino system attached to an AI accelerator
  - Open up a desktop to explore its hardware



Intro to Metrology

Discover how we measure, image, and understand materials at the nanoscale!

- Lecture Highlights
  - Learn how we use light and X-rays to study what computer chips are made of
  - Watch how scientists study crystal structures live, and see how we find tiny surface details and problems in materials
  - Tour U-M's Michigan Center for Materials Characterization
- Hands-On Activities
  - Build simple circuits to measure material properties
  - Operate real materials measurement tools to see super-detailed images of chips

Why This Matters

- Enacting 2022 CHIPS Act goals in Michigan: workforce development and tech innovation
  - Encourages students to launch their semiconductor-related careers within the state of Michigan, helping retain highly skilled talent in advanced manufacturing, sustainable transportation, and microelectronics
  - Makes Michigan more competitive in the national competition for talent
- Helps students:
  - Build skills and confidence in STEM
  - Connect classroom learning to high-tech applications
  - Learn about new career paths in Michigan’s focus industries and their top employers
  - Prepare for internships, jobs, or transfer to 4-year programs

Community College Student Experience

- Custom-designed content for students with high-school level STEM background
- Lab work with real-world tools: voltmeters, SEM, XRD, solder iron, etc
- Exposure to career pathways in advanced manufacturing and microelectronics
- Meet engineers and researchers—ask questions about their work, career paths, and opportunities in the field

Sessions for Community Colleges

- Exclusive sessions can be customized to:
  - Align with your academic calendar
  - Reinforce your course content
  - Serve specific program cohorts (e.g., electrical engineering, mechatronics)
- Opportunities to:
  - Co-organize and co-brand events with U-M
  - Utilize cutting edge, U-M engineering resources
  - Connect faculty and staff with U-M researchers
  - Offer professional development for your faculty alongside student sessions

Next Steps

- Let’s discuss interest from your college!
- Contact me!

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Questions?