ECONOMIC DEVELOPMENT AGENCY
GRANT: UCF MICROELECTRONICS
DIGITAL TWIN

Supporting the Central Florida
Semiconductor Industry Growth

Dr. Grace Bochenek, MeDT Principal Investigator, Director of School of Modeling, Simulation & Training
MeDT Co-Principal Investigators: Dr. Dirk Reiners, Dr. Sean Mondesire, Dr. Glenn Martin, Eileen Smith

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The **BUILD BACK BETTER REGIONAL CHALLENGE** invests in our communities so that they can execute their ambitious plans to supercharge their regional economies.
Central Florida's Semiconductor Coalition

Coalition's BBBRC Activities to Date:

- **JULY 2021**: Funding Opportunity Posted
- **OCTOBER 2021**: Phase 1 Proposal Submitted
- **DECEMBER 2021**: PHASE 1 AWARDED
- **MARCH 2022**: Phase 2 Proposal Submitted
- **SEPTEMBER 2022**: PHASE 2 AWARDED
BY THE NUMBERS
Build Back Better Regional Challenge

529
APPLICANTS

60
FINALISTS

21
REGIONAL COALITIONS AWARDED

$970M INVESTED
1 OF 21
COALITIONS AWARDED

▪ $50.8M federal investment to lead the nation in semiconductor reshoring

▪ Funds the expansion of facilities at Osceola County’s NeoCity

▪ $8.8M to UCF Microelectronics Digital Twin (MeDT)
FUNDED COALITION PROJECTS

Project No. 1 Center for NeoVation Expansion

Project No. 3 Advanced Packaging Program

Project No. 4. Microelectronics Design and Production Digital Twin

Project No. 5 Upskill Osceola

Project No. 6 Catalyst Osceola

Project No. 7 Coalition Governance
UCF MICROELECTRONICS DIGITAL TWIN (MeDT) LEADERSHIP

Principal Investigators:
- Dr. Grace Bochenek, SMST

Co-Principal Investigators:
- Eileen Smith, SMST
- Dr. Sean Mondesire, SMST
- Dr. Dirk Reiners, CECS/SMST
- Dr. Glenn Martin, SMST

INDUSTRY PARTNERS

THE NATIONAL CENTER FOR SIMULATION

RAVE COMPUTER
Microelectronics Digital Twin (MeDT)

“Building Central Florida’s Semiconductor Cluster for American Competitiveness”

A fully developed microelectronic digital twin will accelerate the development of an emerging microelectronics cluster in Central Florida and strengthen the region’s simulation technology sector which produces innovation with global impact.

- Increasing reliability and productivity of the Center of Neovation
- Lowering maintenance costs
- Reducing risk
- Creating new businesses
- Increasing wages
- Improving supply and delivery chain efficiency
- Enabling cross-discipline collaboration to foster innovation
MeDT SCOPE OF WORK

Task One: Develop current-state Digital Twin of the Center for Neovation. Develop first-stage MeDT creating simulated models from data collected in real-time from the facility, select pieces of equipment, and production workflow.

Task Two: Creation and Design of DT Infrastructure Framework. Integrate the new high-performance computer, servers and tool sensors to support data transmission as well as other communications between distributed MeDT locations, and future data capture needs.

Task Three: Develop Simulations to Analyze, Predict and Provide Insight. Develop simulations within the MeDT to highlight efficiencies and deficiencies within current production pipelines, using data from real-time sensors to predict the success/failure probability of the chip design, manufacturing and maintenance processes.

Task Four: Develop an Integrated and Distributed Command Center. Build an interface for the DT, to review data streams, present simulations and provide optimization reports.