

## **Center Specs**

Center for e-Design, Virginia Tech (Lead), University of Pittsburgh, University of Massachusetts Amherst, University of Central Florida, Carnegie Melon (pending)

The vision of the Center for e-Design is to use innovation and creativity to resolve the science and engineering challenges that limit the evolution of a new product/system design and realization paradigm. This new paradigm envisions a future where products/systems are conceived and produced with the full participation of all key stakeholders including: designers, manufacturers, engineers, OEMs, and consumers. Our mission is to serve as a center of excellence for creation and dissemination of a systematic body of knowledge in intelligent e-design and product realization.

## **Overview of Research Activities**

The Center for e-Design focuses its activities in three major efforts to deliver value to its industry/government partners: 1) **Fundamental Research** focuses on creating methods, tools, and technologies to address industry relevant needs in e-tools-enabled product development and realization including: enabling information infrastructure; new design paradigms and processes; design optimization; visualizing and virtual prototyping. 2) **Research Testbed** focuses on integration of interdisciplinary research activities to validate developed tools, methods, and technologies and establish a common framework for multiple applications. This testbed aims to foster collaborative research projects between industrial and academic engineers and scientists; and 3). **Engineering Education and Technology Transfers**, which focus on educating a new cadre of engineers and scientist proficient in e-design and rapidly transferring research results into usable applications for industry and government.

## **Current and Pending Projects**

1. Distributed Multidisciplinary Decision Support
2. Facilitating Effective Communication in Interdisciplinary Design Teams
3. A Conceptual Modeling Multi-Criteria Analysis Environment for User-Centered Design
4. CP<sup>3</sup>: Comprehensive Product Platform Planning
5. Application of Distributed Process Framework for e-Design
6. TIE Project: E-Design for Friction Stir Welding and Processing
7. TIE Research Program on E-Design for Design for Supply Chain
8. e-Design Methods and Tools Facilitating Product Innovation
9. Extending an Engineering Design Optimization Ontology for Supporting Reasoning and Multidisciplinary Constraints
10. Fundamental Research on Interoperability
11. 4D Geometry Compression
12. Protecting Intellectual Property
13. Tools and Artifacts in Innovative Design
14. iCollab – Real-time Infrastructure for Collaborative eDesign Services
15. Virtual e-Design Tools

## **Other Areas of Interest for Collaboration**

Design methods, design optimization, knowledge capture and reuse, decision support, design for the life cycle, and team collaboration. These are well suited for many application domains and industries, ex., aerospace, automotive, medical device industries or consumer products.