CAVS is an interdisciplinary center. It provides engineering, research, development, and technology transfer teams focused on complex problems.

Computational Engineering Program

Computational Engineering (CmE) is a unique interdisciplinary program offering MS and PhD degrees through the Bagley College of Engineering at Mississippi State University (MSU). The CmE program accepts students with undergraduate and graduate degrees in engineering, mathematics, computer science, or the physical sciences.

Mississippi State University is a comprehensive, doctoral-degree-granting university offering to a diverse and capable student body a wide range of opportunities and challenges for learning and growth; to the world of knowledge, vigorous and expanding contributions in research, discovery, and application; and to the State and its people in every region, a variety of expert services. Mississippi State University is designated as a Doctoral/Extensive institution by the Carnegie Foundation for the Advancement of Teaching.

The High Performance Computing Collaboratory is a coalition of member centers and institutes that share a common core objective of advancing the state-of-the-art in computational science and engineering using high performance computing; a common approach to research that embraces a multi-disciplinary, team-oriented concept; and a commitment to a full partnership between education, research, and service.

Award-Winning Student Teams

EcoCAR • 2009-2011
ChallengeX • 2005-2008
Smart Power  Smart Energy

The mission of the AVS group is to research and develop leading edge technologies to improve mobility performance, reliability and safety.

The application of our high performance computational resources leverages the CAVS expertise in simulation and modeling. Our state-of-art laboratories allow the development and experimentation systems to test and validate our designs.

These capabilities are being applied to research activities in:
• understanding and optimizing the complexities of blended technology drive trains,
• dual fuel sources for cleaner, more efficient combustion processes,
• vehicle information management and operator integration,
• application of silicon-carbide devices in motor control,
• vehicle dynamics and NVH effects on driver performance

Core Competencies

AVS delivers new research and technology for:
• Advancing power systems in military and civilian vehicles
• Improving transportation systems at the interface between power and information technology
• Increasing Mississippi’s competitiveness in attracting manufacturing jobs by supporting new and existing businesses in the state
• Enhancing engineering education through hands-on experience

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