Engineering Mechanics Corporation of Columbus
3518 Riverside Drive - Suite 202
Columbus, Ohio 43221

Phone: (614) 459-3200 X226 Fax: (614) 459-6800 E-mail: jkennedy@emc-sq.com

James C. Kennedy, Jr.
Senior Research Leader

Education

Ph.D., Engineering Mechanics, The Ohio State University
M.Sc., Engineering Mechanics, The Ohio State University
B.S., Aeronautical Engineering, Purdue University

Qualifications Dr. Kennedy has been involved in applications of engineering mechanics principles (dynamics, response of structural systems to a variety of loading conditions, materials behavior, etc.) through participation in a wide range of projects funded by the Department of Defense (U.S. Air Force, U.S. Navy, Marines), the U.S. Department of Transportation (Federal Highway Administration, National Highway Traffic Safety Administration, Federal Railroad Administration, Federal Aviation Administration), the National Academy of Sciences (NCHRP, TRB), state and local DOT s and industrial/commercial clients. He has performed project work that involves both analysis (primarily computational methods) and laboratory and field testing activities. He has been responsible for the technical management, marketing and administrative well being of the computational mechanics group while at Battelle for over 20 years. Dr. Kennedy led activities in 3D finite element analysis of pavement systems, involving a variety of material and damage models for the pavement structure including material elasticity, visco-elasticity, plasticity and stress dependency effects under complex static and dynamic (highway vehicular and aircraft) loading conditions. Dr. Kennedy has performed field-testing to determine response of pavement to vehicular traffic and employed test results for comparison with predicted results. Dr. Kennedy was Director of the FHWA Center of Excellence in Finite Element Crash Analysis while at Battelle. Dr. Kennedy has performed extensive field-testing and corresponding computer modeling to investigate the behavior and performance of roadside safety features subjected high-speed vehicular impact. Dr. Kennedy was responsible for acceptance of highway safety products (light weight metallic guardrail post and highway end terminal crash cushion device) by the Federal Highway Administration (FHWA) for use on the National Highway System, their inclusions in states' inventory of acceptable products for highway construction projects and subsequent manufacture and commercialization of these products.

Relevant Experience

Battelle, Associate Manager, Equipment Development and Mechanical Systems (1998 to 2009). Managed and provided technical management of staff in marketing and project work for Equipment Development and Mechanical Systems (EDMS). Brings the technical skills and resources of EDMS into a variety of market sectors within Battelle for application to a broad range of Government and industrial client needs. Director of Center of Excellence in Roadside

Safety sponsored by USDOT. Bring needed technical resources of COE (analysis, design and full scale impact testing) to solution of Roadside Safety problems for State DOTs and manufacturers and vendors of roadside safety hardware. Design and Qualification of new steel guardrail post for highway safety application. Design and test of new safety barrier for race track and highway applications. Fee-For-Service, Lease, and/or Sale of Software (Virtual Fabrication Technology-VFT) to solution of fabrication/manufacture of large material structural systems.

Battelle, Associate Manager, Advanced Manufacturing Group (1990 - 1998). Conducted failure and stress analyses of standard and non-standard structural systems, along with corresponding experimental activities, under a variety of loading environments. Tested and analyzed high-speed impact of vehicles into roadside safety features.

Resource International, Inc., Manager, Division of Research and Applied Technology and Acting Director of Research (1988 - 1990). Managed marketing and technical work of five departments. Conducted research involving fundamental mechanics, including linear and nonlinear fracture mechanics, constitutive modeling, development of damage and failure theories, analysis and design of pavement systems, the permanent deformation aspects of runways, and high strain rate effects in carbon-carbon material systems.

Battelle, Manager, Computational Mechanics (1987 - 1988). Responsible for marketing, research, and analysis of a broad range of problems in applied and fundamental mechanics. The range of problem areas typically encountered included linear and nonlinear fracture mechanics, constitutive modeling, development of damage and failure theories, analysis and design of piping systems for the petrochemical and nuclear industries, and specialized software for structural systems analysis.

Battelle, Principal Research Scientist, Ordnance Systems and Technology Section (1980 - 1987). Responsible for development and qualification of elements for enhancement of fielded systems primarily for the Air Force. Examples include design, test, and qualification of gun gas diverter for GAU-8 cannon on A-10 aircraft and the design, test, and qualification of an alternative thin-wall steel 30-mm cartridge case for the standard aluminum counterpart

Battelle, Researcher, Dynamics Group (1975 - 1980). Conducted analysis of various structural systems to determine baseline dynamic performance relative to design expectations. Systems analyzed involved rail track structures, vehicles over off-road terrain, and vehicle shock absorbers.

The Ohio State University, Assistant Professor (1967 - 1975). Taught undergraduate courses in statics, strength of materials, dynamics, graphics, numerical methods, and computer programming with applications in engineering. Taught graduate-level courses in advanced dynamics, vibrations, analytical dynamics, and inertial navigation. Research included evaluation of the capability of industrial computer programs to satisfy building design code requirements.

Rockwell International, Research Engineer (1959 - 1967). Developed dynamic loads analysis models of wing and canard components for augmented thrust-type aircraft. Developed computer programs for specifying pressure distributions over augmented thrust-type lifting components. Simulation of aircraft platform response to a variety of mechanical and environmental loading conditions.

Professional Activities and Achievements

Awards

Recipient of Distinguished Award of Excellence, Special Programs Office, Eglin Air Force Base (1983).
R&D 100 Award for 2005, Reusable Abutment Cushion Extension (RACE) Safety Barrier

Current Professional Activities

Transportation Research Board (TRB)-AFB 20-Committee on Roadside Design. TRB-AFB 70- Committee on Utilities Safety. American Association of State Highway & Transportation Officials/Associated General Contractors of America/American Road & Transportation Builders Association, Member of Task Force 13