



Biography:

SAMUEL HOLMES, Ph.D.

Red Wing Engineering, Inc.
Principal Engineer

Qualifications Summary

Dr. Holmes is an accomplished project leader and principal investigator with 40 years of engineering experience including research in computational fluid dynamics, offshore oil platform hydrodynamics, computational aeroacoustics, explosive blast effects, laser effects, finite element analysis, and structural dynamics. Most recently, Dr. Holmes was Vice President of Engineering Services at ACUSIM Software, Inc., and previously was a Principal Engineer at Applied Research Associates, Inc., and Director of Engineering Services for Centric, Inc. He has acted as principal investigator for a wide variety of fluid mechanics problems including development of blood flow damage models funded by NIH, the flow through blood pumps and the behavior of stents and allografts. Other experience includes studies of flows in automobile cabins, engine exhaust, computational aeroacoustics, train aerodynamics and aeroacoustics, as well as related dynamic structural response and impact studies.

Professional Experience

2005-2006 ACUSIM SOFTWARE, INC., Vice President Engineering Services

ACUSIM Software is a software development company specializing in computational fluid dynamics software. At ACUSIM, Dr. Holmes oversaw application of CFD software to problems in a variety of industries. He developed novel applications and new solutions for the offshore oil industry.

1998-2005 APPLIED RESEARCH ASSOCIATES, INC., Principal Engineer

Dr. Holmes was manager of the Silicon Valley office of Applied Research Associates. He directed numerous projects including the numerical analysis and design of blood flow devices used in open-heart surgery, the prediction of explosive effects of enhanced explosives and analysis of floating oil platform design.

1992-1998 CENTRIC ENGINEERING SYSTEMS INC., Director of Engineering Services

Centric Engineering was the developer of finite element software specializing in advanced finite element techniques for nonlinear solid and fluid mechanics analysis. Dr. Holmes' specific technical studies included numerical prediction of the flow induced noise from train pantographs, solid rocket motor fluid-structure interaction, the prediction of the aerodynamic loads on passing trains, the aerodynamic loads on trains entering a tunnel, the wind-noise from automobile windows and commercial aircraft, studies of the motion of deep water oil platforms and the sloshing in automobile gas tanks. Other technical areas included mixing flow in automotive

exhausts and stress and vibration analysis of automobile systems.

1982-1992 SRI INTERNATIONAL, Program Manager/Project Leader (also 1971-1980)

SRI performs contract research in a wide variety of technical disciplines for private and public sector clients worldwide. Dr. Holmes was a member of the Physical Sciences Division during two periods of time performing research and managing projects in the areas of human injury, crashworthiness, structural analysis and design, explosives effects including damage to aircraft and missiles, the development of instrumentation to measure very short stress pulses, and laser effects.

1979-1982, ELECTRIC POWER RESEARCH INSTITUTE, Program Manager

EPRI is an international research organization performing R&D activities and producing technical studies for the electric utility industry. Dr Holmes was charged with solving specific problems associated with nuclear power plants. He developed and applied simulation techniques for failure analysis of materials and structures as well as studies of the flow in steam generators and two-phase flow in steam separators. His specific program areas included the stress analysis of steam generators, the operation of steam separators and a combined corrosion and structural response problem called tube denting. He reviewed, monitored and advised contractors. Developed and successfully awarded new contracts to vendors relating to stress corrosion cracking and two-phase flow.

Academic Background

Ph.D., Applied Mechanics, Drexel University, 1971
MS, Applied Mechanics, Drexel University, 1968
BS, Mechanical Engineering, Drexel University, 1966

Professional Associations and Honors

Member - American Society of Mechanical Engineers
Member - International Center for Transportation Studies
Phi Kappa Phi Honor Society

Publications

40 publications and numerous technical reports. (See [Publications](#))

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