

## **BIOGRAPHICAL SKETCH**

### **Eric von Krumreig Hill**

Dr. Hill earned his B.S. in Aerospace Engineering from the University of Oklahoma in 1970 and his Ph.D. in Mechanical Engineering from the same institution in 1980. He has thirty-nine years of engineering experience -- thirteen in project/program management and supervisory positions in the U.S. Air Force and industry, and twenty-six in universities -- plus consulting.

While enlisted in the Air Force, he trained to be an electronics technician on the F-106 fighter interceptor aircraft, completed his undergraduate degree through an *Air Force Institute of Technology Scholarship*, and earned membership in *Sigma Gamma Tau, the National Honor Society in Aerospace Engineering*. After commissioning, he designed four satellites, managed the launch of two spaceflights, and served as the Service Life Monitoring Program manager for the A-7, F-4, and F-111 fleets and as supervisor of the F-111 [Fatigue] Data Analysis Branch. These assignments resulted in an *Air Force Organizational Excellence Award* and two *Air Force Commendation Medals*. As a nondestructive inspection engineer in the USAF Reserves, he developed acoustic emission (AE) testing procedures to locate fatigue cracks in the KC-135 aerial refueling tanker fleet and in TF-30 jet engine fan blades from the F-111 aircraft.

Dr. Hill's industrial experience includes AE nondestructive testing of the graphite/epoxy Space Shuttle Filament Wound Case Solid Rocket Boosters and the Kevlar®/epoxy MX Missile Stage I solid rocket motor cases at Thiokol Corporation. Highlights of his consulting work include the application of AE to optimize the weld parameters in the new super lightweight aluminum-lithium Space Shuttle External Tank in order to minimize porosity and thereby eliminating hot tearing during reweld. He also employed AE to monitor fatigue crack growth and detect leak inception in edge-welded aerospace bellows.

During his university career, he has developed and taught twenty-six different courses, both graduate and undergraduate. The topics range from fluid and solid mechanics to composite structures, from nondestructive testing to neural network applications with a balance between theoretical and experimental. The student evaluations of his teaching have been excellent everywhere he has taught. Consequently, the graduating seniors from the Aerospace Engineering Department of Embry-Riddle Aeronautical University (ERAU) selected him to receive *The Faculty Appreciation Award* five times (Spring 1996, 1997, 1998, and Fall 1998 and 2003); more recently they nominated him for the ERAU *Faculty Member of the Year Award* (2004-05). Finally, five of his students have nominated him for inclusion in *Who's Who Among America's Teachers* (1996, 2002, 2004, 2005, and 2006).

In terms of university scholarly activity, he has been PI or Co-PI for eighteen funded research projects. Acoustic emission nondestructive evaluation has been his primary research emphasis for the past twenty-nine years. Specifically, he has focused on three innovations: (1) low proof load prediction of ultimate strengths in metal and composite structures, (2) low cycle prediction of fatigue life in metal structures, and (3) the development of an in-flight fatigue crack monitoring system for aging aircraft, all from statistical and neural network analyses of AE flaw growth data. Funding has been provided by the USAF, NSF, NASA, EG&G Belfab, the Florida Center for Advanced Aero-Propulsion (FCAAP), and ERAU. In the way of scholarly honors, one of his graduate students won the American Institute of Aeronautics and Astronautics (AIAA) 1991 National Graduate Student Paper Competition for the presentation of his thesis work, while Dr. Hill was selected first runner-up for the ERAU *Researcher of the Year Award* for 2000 and was a finalist again for 2001.

Professionally, Dr. Hill served locally for one year each as Vice-Chairman and Chairman of the Central Florida Section of the American Society for Nondestructive Testing (ASNT) and nationally for one year as the Secretary of the Technical Council and for four years as Chairman of the Acoustic Emission Committee. He has chaired or co-chaired thirteen international conference sessions, has chaired or co-chaired twenty-one masters theses, and is the author of a hundred and thirty-six technical publications, including technical editor

and contributor to the ASNT Handbook, 3<sup>rd</sup> Edition: Volume 6, Acoustic Emission Testing (American Society for Nondestructive Testing, Columbus, OH, 2005) and co-author of the AE 416/417 Aerospace Structures and Instrumentation: Course Notes, Homework Problems, and Lab Manual (ERAU, Daytona Beach, 2007).

Recently he served as co-faculty advisor for Project Icarus, the first ever two-stage undergraduate student sounding rocket ([www.icarusrocket.com](http://www.icarusrocket.com)) launched from NASA Wallops Flight Facility to a record altitude of 37.8 miles (2003-2007). He has also served as the Graduate Program Coordinator (1997-98) and Acting Chair for the Aerospace Engineering Department (2002-03) plus the Graduate Programs Director (2006-07) for the College of Engineering at ERAU. Other honors and awards include citations in Who's Who in the South and Southwest (1995-96 and 1997-98), Who's Who in Engineering Education (2002, 2006), Who's Who in Science and Engineering (2005-06, 2006-07, 2007-08, 2008-09), Who's Who in America (2006, 2007), Who's Who in American Education (2007-08), and the Dictionary of International Biography (2008).

In 1999 he was recruited by the Embry-Riddle Athletic Director to start up a cross country program and serve as its first Men's and Women's Head Coach. At the end of his first season, he was selected by his peers as the 1999 *Florida Sun Conference Women's Cross Country Co-Coach of the Year*. Two years later in 2001, he finished out his third and final year of coaching with the triple honor of being chosen by his peers as *Men's Cross Country Coach of the Year* for (1) the *Florida Sun Conference*, (2) the *National Association of Intercollegiate Athletics (NAIA) Region XIV* (SC and FL), and (3) *NAIA Regions XIII-XIV* (LA, MS, AL, TN, GA, SC, and FL). At least two of his student athletes qualified to go to the NAIA National Cross Country Championships at the end of each season; plus, two of them qualified as All-American Scholar Athletes.

Dr. Hill himself began running track and field competitively for the first time when he turned 50 years of age in 1996. Since then his awards include state championships in the 50m, 60m, 100m, 100m high hurdles, 200m, 400m, 400m intermediate hurdles, 1500m, long jump, high jump, shot put, discus, and javelin. These championships were contested in five states: Florida, South Carolina, Utah, Wyoming, and Montana. He has also won USA Track & Field (USATF) Regional Championships in the Southeast (2000) at Middle Tennessee State University and Northwest (2002) at Washington State University.

The highlights of his national championship track and field awards begin with his bronze medal finish in the 400m intermediate hurdles at USATF National Outdoor Championships at the University of Oregon in 2000. At the 2005 State Games of America he was a member of the gold medal winning 4x400m relay team at the U.S. Air Force Academy. More recently his all-Florida 4x100m relay team took 3<sup>rd</sup> place in the 2007 Senior Olympics at the University of Louisville, followed by his best ever individual finishes in the 2007 State Games of America at the U.S. Air Force Academy. Here he won the bronze medal in both the 50m dash and the long jump sandwiched around *national championships* in the *100m high hurdles* and the *300m intermediate hurdles*. Most recently his 4x100m relay team took 3<sup>rd</sup> place at the 2009 Summer National Senior Games – the Senior Olympics. Honors include being selected for Who's Who in the National Senior Games (2003) and qualifying as a *U.S. Masters All-American* in the *60m dash* (2007 and 2008), the *100m high hurdles* (2004, 2007, 2008, and 2009), the *400m intermediate hurdles* (2000), and the *indoor pentathlon* (2005).