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EDUCATION

Ph.D. Mechanical Engineering, University of Oklahoma, 1980
Dissertation: The Vibrational Response of the Rectangular Parallelepiped
Special Problem: Reciprocity Calibration of Piezoelectric Transducers in a Diffuse Field

B.S. Aerospace Engineering, University of Oklahoma, 1970
Air Force Institute of Technology (AFIT) Scholarship
Sigma Gamma Tau - The National Honor Society in Aerospace Engineering

EXPERIENCE

2006-07 **Graduate Programs Director**, Embry-Riddle Aeronautical University (ERAU), College of Engineering, Daytona Beach, FL

1986-2009 **Acting Department Chair; Graduate Program Coordinator; Professor; and Associate Professor of Aerospace Engineering**, ERAU, Aerospace Engineering Department, Daytona Beach, FL

- * Acting Department Chairman (2002-03) and Graduate Program Coordinator (1997-98)
- * Faculty Advisor, Experimental Rocket Propulsion Labs (ERPL) (2008-present)
- * Faculty Co-Advisor, **Project Icarus**: First ever two-stage student sounding rocket (www.icarusrocket.com) launched from NASA Wallops Flight Facility to a record altitude of 37.8 miles (2003-07).
- * Director, Structures (1994-2007), Composites (1994-2002; 2005-07), and Materials (1994-2002) Laboratories
- * *NASA Faculty Fellowship/Sabbatical*, Marshall Space Flight Center, AL (1992-93)

Nondestructive evaluation (NDE) and structural health monitoring of aerospace systems using acoustic emission (AE) flaw growth data plus statistical and neural network analyses. Research innovations in the following three areas: (1) low proof load prediction of ultimate strengths in metal and composite structures, (2) low cycle prediction of fatigue lives in metal structures, and (3) the implementation of in-flight fatigue crack monitoring systems for aging aircraft.

Cited in the *Who's Who* (2010), *Dictionary of International Biography* (2008), *Who's Who in American Education* (2007-08), *Who's Who in America* (2006, 2007), *Who's Who in Science and Engineering* (2005-06, 2006-07, 2008-09), *Who's Who in Engineering Education* (2002, 2006), and *Who's Who in the South & Southwest* (1995-96 and 1997-98).

1986 **Assistant Professor of Engineering**, University of Denver (DU), Department of Engineering, Denver, CO

Determined solutions for the forced vibrational response of the rectangular parallelepiped with uniformly-loaded and stress-free boundary conditions.

- 1982-85 **Ordnance Project Engineer; Associate Scientist; and Quality Project Engineer**, Thiokol/Wasatch Division, Brigham City, UT
- Coordinated proposed design of the Small ICBM (SICBM) ordnance firing system. Developed acoustic emission nondestructive test techniques for filament wound composite rocket motor assemblies. This included monitoring the 92 inch diameter Kevlar®/epoxy Peacekeeper (MX) Stage I case and the 146 inch diameter graphite/epoxy Space Shuttle filament wound case (FWC) during hydrostatic proof testing. Success of this work led to a follow-on \$3M contract with the NASA Marshall Space Flight Center to test FWC segments under flight load conditions.
- 1981-82 **Assistant Professor of Engineering Mechanics and Mechanical Engineering**, Clemson University (CU), Department of Mechanical Engineering, Clemson, SC
- Generated exact normal mode solutions for the forced vibrational response of the rectangular parallelepiped with rigid, rigid-lubricated, and mixed boundary conditions.
- 1976-81 **Visiting Assistant Professor of Mechanical Engineering; Research Fellow/Graduate Research Assistant; and Graduate Teaching Assistant**, University of Oklahoma (OU), School of Aerospace, Mechanical, and Nuclear Engineering, Norman, OK
- Obtained a USAF contract to design an acoustic emission nondestructive testing system for detecting fatigue crack growth in the Ti-6Al-4V first stage fan blades of the TF-30 jet engine used in the F-111 aircraft.
- 1976-81 **Materials and Test, Nondestructive Inspection Engineer**, USAF Reserve, Oklahoma City Air Logistics Center, Tinker AFB, OK
- Developed a technique for calibrating piezoelectric transducers in a diffuse field which was used to select the transducers (12,500) used for in-flight detection of critical cracking in the 7178 aluminum lower wing skin panels for the 625 aircraft in the KC-135 fleet.
- 1973-75 **Aeronautical Engineer, Structural Fatigue and Chief, F-111 Data Analysis Section**, USAF, Oklahoma Air Logistics Center, Tinker AFB, OK
- Established, trained, and supervised F-111 Data Analysis Section, including 12 Aerospace Engineering Technicians who evaluated structural fatigue data to predict remaining service life on the 440 aircraft in the F-111 fleet. Transitioned, on schedule, this \$1M per year engineering and data processing effort from the contractor to an in-house USAF operation. Fatigue engineer for the A-7, F-4, and F-111 fleets. Awarded an *Air Force Commendation Medal*.
- 1970-72 **Astronautical Engineer, Satellite Design**, USAF, Space and Missile Systems Organization (SAMSO), Los Angeles Air Force Station, CA
- Designed three standard satellites which included twenty-six DoD space physics research payloads (Benjamin F. Elson, "Standard Satellites Under Development," *Aviation Week and Space Technology*, Vol. 105, No. 7, 23 August 1976, pp. 50-52). Wrote the statement of work and participated in the source selection board for this \$6M project. Managed the development and successful launch of two additional spaceflights on Agena upper stages. This resulted in an *Air Force Commendation Medal* and the *Air Force Organizational Excellence Award*.

1999-2002 **Head Coach, Men's and Women's Cross Country**, Embry-Riddle Aeronautical University, Athletic Department, Daytona Beach, FL

Both the men's and women's teams finished in their respective top three at the conference/regional championships each year. Moreover, each team sent at least one qualifier to the national championships all three years. Voted by his peers in 1999 as *Women's Cross Country Co-Coach of the Year* for the Florida Sun Conference and subsequently in 2001 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) by the United States Track Coaches Association.

FUNDED UNIVERSITY RESEARCH

Principle Investigator or Co-Principal Investigator for **eighteen funded research projects** and Committee Chair for **twenty-one completed masters theses**. Funding provided by the USAF, NASA, NSF, EG&G Belfab, the Florida Center for Advanced Aerospace Propulsion, and ERAU. First runner-up for the ERAU *Researcher of the Year Award* for 2000 and a finalist again for 2001.

Funding

2009	Hybrid Rocket Competition – Experimental Rocket Propulsion Labs (ERPL) (Florida Space Grant Consortium, \$1K)
2009	Acoustic Emission Monitoring of Fatigue Cracking and Prediction of Cyclic Life in Bridge Structures (ERAU College of Engineering Faculty Research Proposal Grant, \$5K)
2009	Application of Aircraft Fatigue Prediction Technology to the Florida Infrastructure Transportation System (Bridges) (Florida Center for Advanced Aerospace Propulsion, \$4K)
2009	Hydrostatic Testing Facility (ERAU College of Engineering Undergraduate Student Research Grant, \$1.5K)
2009	Student Travel Grant (Present Technical Paper at Aging Aircraft 2009, The 12 th Annual Joint FAA/DoD/NASA Conference on Aging Aircraft, Kansas City, MO) (ERAU College of Engineering Student Research Grant, \$1.5K)
2008	Hybrid Motor High Powered Rocket Competition – Experimental Rocket Propulsion Labs (ERPL) (Florida Space Grant Consortium, \$2K)
2007	Neural Network Ultimate Strength Prediction in Impact Damaged Composite Specimens Using Acoustic Emission Data (ERAU College of Engineering Research Grant, \$3K)
2005	Project Icarus: Developing an Inexpensive Sounding Rocket for Space Research Payloads (ERAU Provost's Undergraduate Research Grant, \$9K)
2002	Acquisition of Impact Testing Equipment for Material and Structural Research (NSF Major Research Instrumentation Grant, \$107K)
1997-1998	Prediction of Fatigue Lives in Aerospace Bellows Using Early Cycle Acoustic Emission Data (EG&G Belfab, \$10K)
1996-98	Automatic Detection and Classification of Fatigue Cracks (NSF Phase II Small Business Innovation Research Subcontract, \$83K)
1995-96	Developing Burst Pressure Prediction Algorithms Using Multivariate Statistical Analysis and Neural Networks (NASA/JOVE Augmentation Grant, \$39K)
1994	Automatic Detection and Classification of Fatigue Cracks (NSF Phase I Small Business Innovation Research Subcontract, \$16K)
1993	Quantification of Impact Damage in Filament Wound Composite Pressure Vessels (NASA/JOVE Cooperative Agreement, \$41K)

- 1992-95 Aerospace Composites and Acoustic Emission for Nondestructive Testing (NASA/JOVE Cooperative Agreement, \$223K)
- 1988 Vibration of the Rectangular Parallelepiped (Block) (ERAU Research Development Grant, \$4K)
- 1987 Design and Construction of a Burst Pressure Facility for Filament Wound Composite Pressure Vessels (ERAU Research Development Grant, \$2K)
- 1986-87 Burst Pressure Predictions from Acoustic Emission Data in Filament Wound Composite Pressure Vessels (USAF Contract, \$26K)
- 1978-79 Remote Monitoring of Acoustic Emission from Fatigue Crack Growth in TF-30 Fan Blades (USAF Contract, \$30K)

M.S. Theses

- 2009 Anthony M. Gunasekera Compression After Impact Strength Prediction in Graphite/Epoxy Laminates Using Acoustic Emission and Artificial Neural Networks
- 2007 Nicholas S. Spivey Prediction of Fatigue Life in 7075-T6 Aluminum from Neural Network Analysis of Acoustic Emission Data
- 2006 Justin O. Karl Filtering of Acoustic Emission Data through Principal Frequency Component Extraction
- Seth-Andrew T. Dion Neural Network Burst Pressure Prediction in Composite Overwrapped Pressure Vessels from Acoustic Emission Data
- 2005 Tuan-Khoi D. Nguyen: Damage Assessment and Strength Prediction in S2-Glass/Epoxy Laminates Subjected to Low Energy Impact
- 2004 Michele D. Dorfman: Ultimate Strength Prediction in Fiberglass/Epoxy Beams Subjected to Three-Point Bending Using Acoustic Emission and Neural Networks
- Emeka C. Ibekwe: Neural Network Prediction of Fatigue Life in 7075-T6 Aluminum Specimens from Acoustic Emission Data
- 2003 Christopher D. Hess: Residual Compressive Strength Prediction of Carbon/Epoxy Laminates Subjected to Low Velocity Impact Damage
- 2002 Daniel R. Lenzioszek: Modeling of Acoustic Emission Failure Mechanism Data from a Unidirectional Fiberglass/Epoxy Tensile Test Specimen
- 2001 Bao R. Mosinyi: Acoustic Emission for Periodic Inspection of Composite Pressure Vessels
- Edward C. Fatzinger: Low Proof Load Prediction of Ultimate Strengths of Fiberglass/Epoxy I-Beams Using Acoustic Emission
- 1998 David L. W. Ballard: Fatigue Life Prediction of Edge-Welded Metal Bellows Using Neural Networks and Multiple Linear Regression
- Christopher L. Rovik: Classification of In-Flight Fatigue Cracks in Aircraft Structures using Acoustic Emission and Neural Networks
- Samuel G. Vaughn III: In-Flight Fatigue Crack Monitoring of an Aircraft Engine Cowling
- 1996 Marcus E. Fisher: Burst Pressure Prediction of Filament Wound Composite Pressure Vessels Using Acoustic Emission
- Michael L. Marsden: Detection of Fatigue Crack Growth in a Simulated Aircraft Fuselage
- 1995 W. Paul Thornton: Classification of Acoustic Emission Signals from an Aluminum Pressure Vessel Using a Self-Organizing Map
- 1994 Adriano F. de Almeida: Neural Network Detection of Fatigue Crack Growth in Riveted Joints Using Acoustic Emission
- 1993 Thomas M. Ely: Failure Mechanism Characterization in Graphite/Epoxy Using Acoustic Emission Data
- 1992 Michael Kouvarakos: Isolating Failure Mechanisms in a Fiberglass/Epoxy Tensile Test Specimen Using Acoustic Emission Signal Parameters

- 1990 James L. Walker II: Composite Structure Ultimate Strength Prediction from Acoustic Emission Amplitude Data (*AIAA Graduate Student Paper of Year*)
- 1988 Frederick R. Kalloo: Predicting Burst Pressures in Filament Wound Composite Pressure Vessels Using Acoustic Emission Data

UNIVERSITY COURSES

Taught twenty-six different courses covering nearly every aspect of aerospace and mechanical engineering and engineering mechanics. **Excellent student evaluations of teaching.** Selected by the graduating seniors from the Aerospace Engineering Department at ERAU to receive **five Faculty Appreciation Awards** (Spring 1996, 1997, 1998, plus Fall 1998 and 2003) plus **Faculty Member of the Year** nominee (2004-05). Also nominated by students for **five citations** in *Who's Who Among America's Teachers* (1996, 2002, 2004, 2005 and 2006).

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| ERAU: | AE 590, Neural Network Applications | AE 316, Engineering Materials Science |
| | AE 518, Acoustic Emission NDT | AE 302, Aerodynamics II |
| | AE 420, Aircraft Preliminary Design | AE 301, Aerodynamics I |
| | AE 416/417, Structures & Instrumentation Lab | ES 202, Solid Mechanics |
| | AE 409, Aircraft Composite Structures | ES 201, Statics |
| | AE 407, Matrix Structural Methods | EGR 101, Introduction to Engineering |
| DU: | ENEE 3550, Mechanical Vibrations Lab | ENEE 2770, Fluid Mechanics I |
| | ENEE 2780, Fluid Mechanics II | |
| CU: | ME 893, Wave Propagation in Elastic Solids | EM 305, Strength of Materials Lab |
| | EM 625, Advanced Strength of Materials | EM 304, Strength of Materials |
| OU: | AME 4831, Nondestructive Evaluation Lab | AME 3113, Measurements Lab |
| | AME 4143, Solid Mechanics II | ENGR 1212, Engineering Drawing |
| | AME 3413, Vibrating Systems | ENGR 1113, Introduction to Engineering |
| | ENGR 3233, Heat Transfer & Fluid Mechanics | |

PROFESSIONAL SOCIETIES AND ACTIVITIES

American Society for Nondestructive Testing (ASNT):

Chapter (Acoustic Emission Testing) Coordinator: ASNT Industry Handbook: Aerospace NDT, American Society for Nondestructive Testing, Columbus, OH, 2010.

Technical Editor: Nondestructive Testing Handbook, Third Edition: Volume 6, Acoustic Emission Testing, 3rd Edition, ASNT, Columbus, OH, 2005.

Taught Short Course: Acoustic Emission Methods, Spring Conference, Orlando, FL, 23 March 1999.

- * **Chairman, Acoustic Emission Committee** (1993-1996 and 2003-present)
- * **Chairman and Vice Chairman, Central Florida Section** (1999-2001)
- * **Member:** Handbook Development Committee; Acoustic Emission Committee; Ultrasonics Committee; Technology Transfer Committee; Aerospace Committee; and Committee on Acoustic Emission in Reinforced Plastics (CARP).

Member, NASA Panel Session, Fall Conference, Pittsburgh, PA, 15 October 2003.

Chairman, Acoustic Emission Session, 12th Annual Research Symposium, Orlando, FL, 11 March 2003.

Chairman, NDE for Corrosion Detection Session, 9th Asia-Pacific Conference on Nondestructive Testing, Anaheim, CA, 23-28 March 1998.

Chairman, Ultrasonics Session, 7th Annual Research Symposium, Anaheim, CA, 23-28 March 1998.

Co-Chairman, Acoustic Emission Applications Session, Spring Conference, Anaheim, CA, 23-28 March 1998.

Chairman, NDE Technology Transfer and Commercialization Initiatives Panel, Fall Conference, Seattle, WA, 14-18 October 1996.

Chairman, Acoustic Emission Session, Fall Conference, Dallas, TX, 16-20 October 1995.

Chairman, Acoustic Emission Testing of Reinforced Plastic Materials Session, Spring Conference, New Orleans, LA, 21-25 March 1994.

Co-Chairman, 8th Meeting of the Committee on Acoustic Emission from Reinforced Plastics (CARP), Salt Lake City, UT, 6-8 March 1984.

Chairman, Real Time Quality Control with Acoustic Emission Session, Fall Conference, Dallas, TX, 24-27 October 1983.

Co-Chairman, Acoustic Emission Session, Spring Conference, Orlando, FL, 7-10 March 1983.

American Institute for Aeronautics and Astronautics:

Chairman, Modeling and Optimization in Acoustics Session, Fourth International Conference on Nonlinear Problems in Aviation & Aerospace, Melbourne, FL, 15-17 May 2002.

Chairman, Aerospace Applications of Acoustic Emission Session, Second International Conference on Nonlinear Problems in Aviation & Aerospace, Daytona Beach, FL, 29 April-1 May 1998.

Chairman, Artificial Feedback Neural Networks Session, First International Conference on Nonlinear Problems in Aviation & Aerospace, Daytona Beach, FL, 9-11 May 1996.

CONSULTING

- 2004 **HyPerComp Engineering, Brigham City, UT:** Proposed using neural network analysis of acoustic emission data from hydroproof for burst pressure prediction in composite overwrapped pressure vessels.
- 2004 **SiemensWestinghouse Power Corporation, Orlando, FL:** Proposed neural network analysis of gas turbine engine parameter data to predict fatigue lives in compressor disks and blades.
- 1999 **Superior Industries, Ormond Beach, FL:** Analyzed hydraulic cylinder weld failure.
- 1998 **Action Plating Corporation, Opa-Locka, FL:** Determined liability for blue embrittlement in Boeing 727 slat tracks.

- 1997-98 **EG&G Belfab, Daytona Beach, FL:** Detected fatigue crack growth and leak inception in edge-welded stainless steel and nickel alloy bellows using acoustic emission (AE) nondestructive testing. Predicted cycle life to failure from low cycle AE data using neural network and multiple linear regression analyses.
- 1997 **Institute for Advanced Technology, University of Texas, Austin TX:** Generated a proposal to predict ultimate strengths in composite rotor bands during hydroproof loading using neural networks and acoustic emission flaw growth signals.
- 1997 **Crane Technologies Group, Daytona Beach, FL:** Assessed the feasibility of using acoustic emission nondestructive testing to locate cracks in high performance NASCAR camshaft lobes.
- 1996 **Memtec America Corporation, Fluid Dynamics, DeLand, FL:** Demonstrated the feasibility of monitoring die wear in wire drawing operations with acoustic emission.
- 1995-96 **Physical Acoustics Corporation, Princeton, NJ:** Performed an engineering review of their acoustic emission test procedure for detecting leaks in above-ground storage tanks. Developed a two hour block of instruction on neural networks and their applications in acoustic emission nondestructive testing.
- 1995 **University of Alabama in Huntsville, Huntsville, AL:** Monitored acoustic emission to optimize the weld parameters in the super lightweight aluminum-lithium Space Shuttle External Tank as a means of minimizing porosity and thereby eliminating hot tearing during reweld.
- 1994 **Martingale Research Corporation, Richardson, TX:** Collaborated on a proposal to verifying the strength of helicopter rotor blade (corrosion disbond) repairs from acoustic emission data.
- 1994 **Richard D. Irwin, Inc., Burr Ridge, IL:** Textbook review: W.B. Bickford, Mechanics of Solids, Concepts and Applications, Irwin, Homewood, IL, 1993.
- 1980 **Dunegan/Endevco Corporation, San Juan Capistrano, CA:** Translated a two-volume technical manual on acoustic emission detection of spalling in alumina and silica refractory bricks into readable English. (Nondestructive Testing Handbook, Volume 5, Acoustic Emission Testing, 2nd Edition, R.K. Miller and P. McIntire, Editors, American Society for Nondestructive Testing, Columbus, OH, 1987, pp. 575-585.)
- 1976-78 **Federal Aviation Administration, Transportation Safety Institute, Oklahoma City, OK:** Developed instructional materials and taught classes on fault tree analysis as applied to aircraft accident investigation and the design of rapid transit systems.

PUBLICATIONS

A hundred and thirty-nine technical publications including **two books, twenty-seven refereed journal/book articles**, twenty-six refereed conference proceedings, twenty-six conference summary papers, thirty conference/symposium presentations, four invited presentations, four short courses, and twenty other technical publications including the Ph.D. Dissertation..

Books:

E.v.K. Hill, J.L. Walker II, K.K. Heinzer, and R.T. Holt, AE416/417 Aerospace Structures and Instrumentation: Class Notes, Homework Problems, and Lab Manual, Embry-Riddle Aeronautical University, Daytona Beach, 2007

R.K. Miller and E.v.K. Hill, Technical Editors and P.O. Moore, Editor, Nondestructive Testing Handbook, 3rd Edition: Volume 6, Acoustic Emission Testing, American Society for Nondestructive Testing, Columbus, OH, 2005.

Refereed Journal/Book Articles:

E.v.K. Hill, J.L. Walker II and M.D. Dorfman, "Acoustic Emission Data and Neural Network Analysis," accepted for publication in ASNT Industry Handbook: Aerospace NDT, American Society for Nondestructive Testing, Columbus, OH, 2010.

E.v.K. Hill, J.O. Karl, S.-A.T. Dion, N.S. Spivey and J.L. Walker II, "Neural Network Burst Pressure Predictions in Composite Overwrapped Pressure Vessels," accepted for publication in ASNT Industry Handbook: Aerospace NDT, American Society for Nondestructive Testing, Columbus, OH, 2010.

E.v.K. Hill and C.L. Rovik, "In-Flight Fatigue Crack Growth Monitoring in an Aircraft Vertical Tail," accepted for publication in ASNT Industry Handbook: Aerospace NDT, American Society for Nondestructive Testing, Columbus, OH, 2010.

E.v.K. Hill, S.-A.T. Dion, J.O. Karl, N.S. Spivey, and J.L. Walker II, "Neural Network Burst Pressure Prediction in Composite Overwrapped Pressure Vessels," *Journal of Acoustic Emission*, Vol. 25, 2008, pp. 187-193.

E.v.K. Hill and R.J. Demeski, "Classification of Failure Mechanism Data from Fiberglass Epoxy Tensile Specimens," Nondestructive Testing Handbook, Third Edition: Volume 6, Acoustic Emission Testing, American Society for Nondestructive Testing, Columbus, OH, 2005, pp. 167-170.

E.v.K. Hill and J. L. Walker II, "Neural Network Prediction of Burst Pressures in Graphite Epoxy Pressure Vessels," Nondestructive Testing Handbook, Third Edition: Volume 6, Acoustic Emission Testing, American Society for Nondestructive Testing, Columbus, OH, 2005, pp. 171-176.

J.M. Carlyle, H.L. Bodine and E.v.K. Hill, "Acoustic Emission Testing of Aircraft," Nondestructive Testing Handbook, Third Edition: Volume 6, Acoustic Emission Testing, American Society for Nondestructive Testing, Columbus, OH, 2005, pp. 360-366.

E.v.K. Hill and S.G. Vaughn III, "Fatigue Crack Monitoring of an Aircraft Engine Cowling in Flight," Nondestructive Testing Handbook, Third Edition: Volume 6, Acoustic Emission Testing, American Society for Nondestructive Testing, Columbus, OH, 2005, pp. 367-376.

Refereed Journal/Book Articles (Continued):

E.v.K. Hill and T.J. Lewis, "Acoustic Emission Monitoring of a Rocket Motor Case during Hydrostatic Testing," Nondestructive Testing Handbook, Third Edition: Volume 6, Acoustic Emission Testing, American Society for Nondestructive Testing, Columbus, OH, 2005, pp. 377-381.

E.v.K. Hill, "Acoustic Emission Prediction of Burst Pressures in Fiberglass Epoxy Pressure Vessels," Nondestructive Testing Handbook, Third Edition: Volume 6, Acoustic Emission Testing, American Society for Nondestructive Testing, Columbus, OH, 2005, pp. 382-387.

E.C. Fatzinger and E.v.K. Hill, "Low Proof Load Prediction of Ultimate Loads of Fiberglass/Epoxy Resin I-Beams from Acoustic Emission," *Journal of Testing and Evaluation*, Vol. 33, No. 5, September 2005, 8 pages (on line).

M.E. Fisher and E.v.K. Hill, "Burst Pressure Prediction in Filament Wound Composite Pressure Vessels Using Acoustic Emission," *Materials Evaluation*, Vol. 56, No. 12, 1998, pp. 1395-1401.

J.L. Walker II, S.S. Russell, G.L. Workman and E.v.K. Hill, "Neural Network/Acoustic Emission Burst Pressure Prediction for Impact Damaged Composite Pressure Vessels," *Materials Evaluation*, Vol. 55, No. 8, 1997, pp. 903-907.

M. Kouvarakos and E.v.K. Hill, "Isolating Tensile Failure Mechanisms in Fiberglass/Epoxy from Acoustic Emission Signal Parameters," *Materials Evaluation*, Vol. 54, No. 9, 1996, pp.1025-1031.

E.v.K. Hill, J.L. Walker II and G.H. Rowell, "Burst Pressure Prediction in Graphite/Epoxy Pressure Vessels Using Neural Networks and Acoustic Emission Amplitude Data," *Materials Evaluation*, Vol. 54, No. 6, 1996, pp. 744-748, 754.

E.v.K. Hill and J.L. Walker II, "Backpropagation Neural Networks for Predicting Ultimate Strengths of Unidirectional Graphite/Epoxy Tensile Specimens," *Advanced Performance Materials*, Vol. 3, No. 1, 1996, pp. 75-83.

T.M. Ely and E.v.K. Hill, "Longitudinal Splitting and Fiber Breakage Characterization in Graphite/Epoxy Using Acoustic Emission Data," *Materials Evaluation*, Vol. 53, No. 2, 1995, pp. 134-140.

A.F. Almeida and E.v.K. Hill, "Neural Network Detection of Fatigue Crack Growth in Riveted Joints Using Acoustic Emission," *Materials Evaluation*, Vol. 53, No. 1, 1995, pp. 76-82.

E.v.K. Hill, P.L. Israel and G.L. Knotts, "Neural Network Prediction of Aluminum-Lithium Weld Strengths from Acoustic Emission Amplitude Data," *Materials Evaluation*, Vol. 51, No. 9, 1993, pp. 1040-1045, 1051.

E.v.K. Hill, "Predicting Burst Pressures in Filament Wound Composite Pressure Vessels by Using Acoustic Emission Data," *Materials Evaluation*, Vol. 50, No. 12, 1992, pp. 1439-1445.

E.v.K. Hill and T.J. Lewis, "Acoustic Emission Monitoring of a Filament Wound Composite Rocket Motor Case During Hydroproof," *Materials Evaluation*, Vol. 43, No. 7, 1985, pp. 859-863.

E.v.K. Hill, "A General Normal Mode Solution for the Free Vibration of the Rectangular Parallelepiped," *Journal of the Acoustical Society of America*, Vol. 78, No. 4, 1985, pp. 1344-1347.

E.v.K. Hill, "The Vibrational Response of the Rectangular Parallelepiped With Completely Stress-Free Boundaries," *Journal of the Acoustical Society of America*, Vol. 75, No. 2, 1984, pp. 442-446.

Refereed Journal/Book Articles (Continued):

E.v.K. Hill and D.M. Egle, "Acoustic Emission in Jet Engine Fan Blades," *Materials Evaluation*, Vol. 40, No. 7, 1982, pp. 770-773.

E.v.K. Hill and D.M. Egle, "The Response of the Rectangular Parallelepiped to a Simulated Acoustic Emission Burst," *Journal of the Acoustical Society of America*, Vol. 71, No. 4, 1982, pp. 891-901.

E.v.K. Hill and D.M. Egle, "The Forced Vibrational Response of the Rectangular Parallelepiped with Rigid-Lubricated Boundaries," *Journal of Sound and Vibration*, Vol. 80, No. 1, 1982, pp. 61-69.

E.v.K. Hill and D.M. Egle, "A Reciprocity Technique for Estimating the Diffuse Field Sensitivity of Piezoelectric Transducers," *Journal of the Acoustical Society of America*, Vol. 67, No. 2, 1980, pp. 666-672.

Refereed Conference Proceedings:

J. Suleman, A. Korcak, F.F. Barsoum, and E.v.K. Hill, "Acoustic Emission Monitoring and Neural Network Fatigue Life Prediction in Steel Bridges," Florida Center for Advanced Aero-Propulsion (FCAAP) – Annual Technical Symposium 2009, Tallahassee, FL, 13-14 August 2009, 6 pages.

J. Suleman, E.v.K. Hill, E. Villa, and M.A. Okur, "Neural Network Fatigue Life Prediction in Aluminum from Acoustic Emission Data," Aging Aircraft 2009, The 12th Annual Joint FAA/DoD/NASA Conference on Aging Aircraft, Kansas City, MO, May 2009, 29 pages.

E.v.K. Hill, Y. Zhao, T. Ebert, J.V. Kay, and G.K. Lewis, "Compression After Impact Strength Prediction in Composites Using Acoustic Emission and Neural Networks," 49th AIAA/ASME/ASCE//AHS/ASC Structures, Structural Dynamics, and Materials (SDM) Conference, Schaumburg, IL, April 2008.

E.v.K. Hill, M.D. Dorfman, and Y. Zhao, "Ultimate Strength Prediction in Fiberglass/Epoxy Beams Using Acoustic Emission Amplitude Distribution Data," Advances in Acoustic Emission - 2007: Proceedings of the 6th International Conference on Acoustic Emission, K. Ono, Editor, Acoustic Emission Working Group and Acoustic Emission Group, Encino, CA, 2007, pp. 330-335.

E.v.K. Hill, S.-A.T. Dion, J.O. Karl, N.S. Spivey, and J.L. Walker II, "Neural Network Burst Pressure Prediction in Composite Overwrapped Pressure Vessels," Advances in Acoustic Emission - 2007: Proceedings of the 6th International Conference on Acoustic Emission, K. Ono, Editor, Acoustic Emission Working Group and Acoustic Emission Group, Encino, CA, 2007, pp. 324-329.

Y. Zhao, T.-K. Nguyen and E.v.K. Hill, "After-Impact Compressive Strength Prediction for Laminated Composites," 47th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials (SDM) Conference, Newport, RI, May 2006.

Y. Zhao, C.D. Hess, E.v.K. Hill and C.-S. Wang, "Prediction of Residual Strength of Laminated Composites Subjected to Low Velocity Impact," Proceedings of the Society of Plastics Engineers 62nd Annual Technical Conference (ANTEC 2004), Society of Plastics Engineers, Chicago, 2004, pp. 1369-1373.

C.D. Hess, Y. Zhao, E.v.K. Hill and C.-S. Wang, "Residual Strength Prediction and Damage Tolerance Analysis of Carbon/Epoxy Laminates Subjected to Low Velocity Impact Damage," ICCE-10: Tenth International Conference on Composites/Nano Engineering, University of New Orleans, 2003, pp. 239-240.

Refereed Conference Proceedings (Continued):

K.M. Kostreva and E.v.K. Hill, "Classification of Acoustic Emission Data from Graphite/Epoxy Failure Mechanisms Using Neural Networks," Fourth International Conference on Nonlinear Problems in Aviation & Aerospace, European Conference Publications, Cambridge, 2003, pp. 281-288.

D.R. Lendzioszek, E.v.K. Hill and R.J. Demeski, "Neural Network Classification and Modeling of Acoustic Emission Data from a Fiberglass/Epoxy Tensile Test Specimen," Fourth International Conference on Nonlinear Problems in Aviation & Aerospace, European Conference Publications, Cambridge, 2003, pp. 297-302.

E.v.K. Hill, S.M. Abedi and J.L. Walker II, "Acoustic Emission Weld Monitoring in the 2195 Aluminum-Lithium Alloy," Fourth International Conference on Nonlinear Problems in Aviation & Aerospace, European Conference Publications, Cambridge, 2003, pp. 187-193.

D.L.W. Ballard, E.v.K. Hill and J.B. Allen, "Acoustic Emission Detection of Fatigue Crack Growth in Edge-Welded Metal Bellows," Second International Conference on Nonlinear Problems in Aviation & Aerospace, Vol. 1, European Conference Publications, Cambridge, 1999, pp. 73-78.

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E.v.K. Hill, "An Introduction to Neural Networks," Short Course Handout, Physical Acoustics Corporation, Princeton, NJ, 1995.

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STATE & NATIONAL TRACK & FIELD HONORS AND AWARDS

- 2009 Summer National Senior Games – The Senior Olympics: 3rd place – 4x100m
- 2009 Wyoming Senior Olympics: 2nd place – 50m, 100m, 200m, high jump, and javelin; 3rd place – long jump and shot put
- 2009 Utah Summer Games: 1st place – 100m, 100m high hurdles, 200m, and 4x100m relay
- 2009 **U.S. Masters All-American - 100m high hurdles** (19.09s)
- 2008 Florida Senior Games State Championships: 1st place – 4x100m relay; 2nd place – long jump
- 2008 USA Track & Field (USATF) National Masters Championships: 4th place 4x100m relay
- 2008 Wyoming Senior Olympics: 1st place - high jump and 200m; 2nd place - javelin and 50m; 3rd place - long jump and 100m
- 2008 USATF Utah Masters Championships: 1st place - long jump, 100m high hurdles, 100m, and 200m
- 2008 Montana Senior Olympics: 1st place - 60m and long jump; 2nd place - 100m, 200m, and high jump
- 2007 **U.S. Masters All-American - 60m** (8.62s) **and 100m high hurdles** (19.05s)
- 2007 State Games of America: **1st place - 100m high hurdles and 300m intermediate hurdles**; 3rd place - 50m and long jump
- 2007 Summer National Senior Games -- The Senior Olympics: 3rd place - 4x100m relay
- 2007 Florida Sunshine State Games: 1st place - 100m high hurdles; 2nd place - long jump; 3rd place - 100m and 200m
- 2006 Florida Senior Games State Championships: 1st place - long jump and 4x100m relay; 3rd place - 100m
- 2006 Wyoming Senior Olympics: 1st place - 100m and 200m; 2nd place - 50m, long jump, high jump, and javelin; 3rd place - shot put and discus
- 2006 Florida Sunshine State Games: 1st place - 100m and shot put; 2nd place - 100m high hurdles, 200m, high jump, and long jump
- 2006 USATF Florida Masters Championships: 1st place - 100m high hurdles, 200m, and high jump; 2nd place - 100m; 3rd place - long jump
- 2005 Florida Senior Games State Championships: 2nd place - long jump, high jump, and 200m
- 2005 Wyoming Senior Olympics: 1st place - 50m, 100m, 200m, 400m, and high jump; 2nd place - long jump, shot put, and javelin; 3rd place - discus
- 2005 State Games of America: 1st place - 4x400m relay; 4th place - 400m intermediate hurdles; 6th place - 200m and 100m high hurdles; and 7th place - 100m
- 2005 **U.S. Masters All-American - indoor pentathlon** (2,712 points)

- 2004 Florida Senior Games State Championships: 3rd place - 400m
- 2004 USATF National Masters Championships: 6th place - 400m intermediate hurdles; and 7th place - 100m high hurdles
- 2004 USATF Northwest Regional Masters Championships: 1st place - 100m
- 2004 Utah Summer Games: 1st place - 100m high hurdles, 400m intermediate hurdles*, and 200m*; and 3rd place - 100m (*age group record)
- 2004 USATF Florida Masters Championships: 1st place - 100m high hurdles and 200m; 2nd place - 200m; 3rd place - shot put; and 4th place - discus
- 2004 U.S. Masters All-American - 100m high hurdles (16.72s)**
- 2003 Florida Senior Games State Championships: 3rd place - 400m
- 2003 Who's Who in the National Senior Games Association**
- 2003 Wyoming Senior Olympics: 1st place - 400m, long jump, and high jump; 2nd place - 100m and 200m; and 3rd place - 50m, shot put, discus, and javelin
- 2003 USATF Florida Masters Championships: 1st place - 100m high hurdles, 400m intermediate hurdles; 2nd place - 200m; and 3rd place - 100m
- 2002 Wyoming Senior Olympics: 1st place - 50m, 100m, 200m, 400m, long jump, shot put, and discus
- 2002 USATF Northwestern Regional Masters Championships: 1st place - 100m high hurdles and 400m; and 2nd place - 100m
- 2001 USATF National Masters Championships: 6th place - 400m intermediate hurdles
- 2001 USATF South Carolina Masters Championships: 1st place - 100m, 100m high hurdles and 400m intermediate hurdles; and 2nd place - 200m, 400m and long jump
- 2001 USATF Florida Masters Championships: 1st place - 100m, 100m high hurdles, long jump and javelin; and 2nd place - 200m, shot put and discus
- 2001 USATF Georgia Masters Championships: 2nd place - long jump; and 3rd place - 200m and 400m
- 2000 Florida Senior Games State Championships: 3rd place - 400m
- 2000 USATF National Masters Championships: 6th place - 100m high hurdles; and 3rd place - 400m intermediate hurdles
- 2000 Wyoming Senior Olympics: 2nd place - 50m, 100m, 200m, long jump; and 3rd place - 400m
- 2000 USATF Southeastern Regional Masters Championships: 1st place - 100m high hurdles and 400m intermediate hurdles (67.58s: U.S. Masters All-American)**
- 1999 Florida Senior Games State Championships: 1st place - 400m and high jump; 2nd place - 200m and shot put; 3rd place - long jump and discus; and 4th place - 100m and javelin
- 1999 National Senior Games -- The Senior Olympics: 8th place - 400m
- 1999 USATF National Masters Championships: 5th place - 100m high hurdles; and 6th place - 400m intermediate hurdles
- 1999 USATF Eastern Masters Regional Championships: 3rd place - 400m intermediate hurdles
- 1999 USATF Florida Masters Championships: 1st place - 100m high hurdles, 100m, 200m, 400m, and long jump; 3rd place - shot put and discus; and 4th place - javelin
- 1998 Florida Senior Games State Championships: 2nd place - 400m and high jump
- 1998 USATF National Masters Championships: 5th place - pentathlon; 6th place - 100m high hurdles; and 12th place - long jump
- 1998 USATF Florida Masters Championships: 1st place - 100m high hurdles, long jump, and 1500m; 2nd place - 100m, shot put, and javelin; and 3rd place - 200m and discus
- 1997 Florida Senior Games State Championships: 1st place - 100m, 200m, and long jump; 2nd place - 400m; and 3rd place - discus
- 1997 USATF Florida Masters Championships: 2nd place - 100m and 200m
- 1996 Florida Senior Games State Championships: 1st place - 200m; and 4th place - 100m

VOLUNTEER LEADERSHIP POSITIONS

Boy Scouts of America: Scoutmaster (3); Assistant Scoutmaster (2); Chartered Organizational Representative; Scout Committee Advancement Chairman (2)

The Church of Jesus Christ of Latter-day Saints:

Ward:	1st Counselor, Bishopric	1st Counselor, Young Men's Presidency
	2nd Counselor, Bishopric	2nd Counselor, Young Men's Presidency
	Executive Secretary	1st Counselor, Sunday School Presidency
	Mission Leader (2)	Sunday School Teacher (6)
	High Priests Group Leader (3)	Activities Committee Chairman
	Elders Quorum President	Athletic Director
	1st Counselor, Elders Quorum Presidency	Coach, Men's Softball Team (4)
	Elders Quorum Instructor	Coach, Men's Basketball Team (5)
	Institute of Religion Teacher (2)	
Stake:	High Councilor (2)	Assistant Clerk
	Athletic Director	Missionary (2)
	Media Assistant, Public Affairs	
Region:	Athletic Director	
District:	Orlando Temple Ordinance Worker	

PERSONAL

Citizenship: U.S.

Marital Status: Married

Hobbies and Interests: Track & field, weightlifting, genealogy, and writing poetry

REFERENCES

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