

Instructor Resumé

STRETHER SMITH

Consultant and Lecturer in
Data Acquisition, Structural Analysis and Computer Applications to
Technology Training, Inc.

Strether Smith has over forty years experience in structural analysis, data acquisition, digital-signal analysis and structural dynamic testing. He has worked in the aerospace community specializing in spacecraft-testing techniques, the electrical-utility industry working on the dynamic characterization of power transmission lines, and in several data-acquisition-system development companies specializing in the conception, design, and implementation of large-scale, audio-frequency data acquisition systems. In addition to his industry experience, he has conducted lectures and workshops in data acquisition.

EXPERIENCE

- 1982–Present STRUCTURAL ANALYSIS CONSULTANTS, Cupertino, California. *Owner/President*. SSAC provides consulting services in digital data acquisition and analysis and structural testing technology. Clients include the Bonneville Power Administration, Apple Computers, Lockheed Martin, BAE Systems, Caterpillar, DSPCon, and DaqScribe.
- 1998–2005 DSPCon, Inc. Los Altos, CA Chief Consultant, Head of West Coast Office. Designed, developed and marketed high performance digital data acquisition and analysis systems. Developer of the Post Processing Analysis Suite for the PIRANHA family of data acquisition/analysis systems.
- 1982–1998 LOCKHEED-MARTIN MISSILES & SPACE CO. Advanced Technology Center, Palo Alto, CA *Consulting Scientist*. Headed the Computer Aided Testing Systems (CATS) group that conceived, designed, and built a wide variety of very-high-performance computerized data acquisition/analysis systems including the ARDVARC and PIRANHA system families. Performed research and development in measurement, acquisition and analysis techniques. Author of several structural-dynamic data analysis software systems. Consultant to Lockheed and others in computer applications, instrumentation, experimental mechanics.
- 1978–1982 SYNERGISTIC TECHNOLOGY INC., Cupertino, California. Founder and Vice President/Treasurer. Directed research in static and dynamic characterization of structures by theoretical and experimental methods. Responsible for development and marketing of hardware and software systems for control and analysis of structural dynamic tests. Directed development of the VAMP dynamic analysis processor for commercial use. Performed consulting services in dynamic testing and analysis for the electrical utility and aerospace industries.
- 1967–1978 LOCKHEED MISSILES & SPACE COMPANY Research Scientist, Structural Mechanics Laboratory. Directed and performed research and development in experimental mechanics with emphasis on the development of new techniques for structural dynamic testing.
- 1964–1967 STANFORD UNIVERSITY, Palo Alto, California. Test Engineer, Department of Aeronautics and Astronautics. Performed experimental research in thin shell stability.

EDUCATION

- Bachelor of Mechanical Engineering, CORNELL UNIVERSITY, Ithaca, New York, 1962. Specializing in thermodynamics and machine design.
- Engineer, Aeronautics and Astronautics. STANFORD UNIVERSITY, Palo Alto, California, 1964. Thesis: "An Experimental Investigation of the Thermal Buckling of Conical Shells."
- Master of Science, Aeronautics and Astronautics, STANFORD UNIVERSITY, Palo Alto, California, 1964. Specializing in structures and low speed aerodynamics.

TECHNICAL ACTIVITIES, HONORS

- 2010 Invited Author: Harris' Shock and Vibration Handbook, Sixth Edition, Chapter 13, "Shock and Vibration Data Acquisition" McGraw Hill, 2010
- 2005 Keynote Speaker, Vibration Institute Annual Meeting
- 1986-1987 National President, APTEC User's Group.



TECHNICAL ACTIVITIES, HONORS, cont.

1983 Elias Klein Memorial Lecturer, 54th Shock and Vibration Symposium, Pasadena, California.

Member of editorial board, *Sensors Magazine*

Contributing editor, *Sound and Vibration Magazine*.

TEACHING ACTIVITIES

Developed and taught the course "Digital Data Acquisition and Analysis" for the DeAnza College evening program.

Has presented tutorials on Digital Data Acquisition at Sensors Expo and Shock & Vibration (SAVIAC) Symposium.

1992 to present: Instructor and Consultant for Technology Training, Inc., in Digital Data Acquisition, Analysis and Signal Processing, as well as Vibration Testing Technology.

PUBLICATIONS 1994-present

"The Effect of Out-Of-Band Energy on the Measurement and Analysis of Pyroshock Data", Shock & Vibration Symposium, San Diego, CA, October 2009

"A Proposed Validation Test Suite for Data Acquisition Systems used for Pyrotechnic Tests" Shock & Vibration Symposium, San Diego, Ca. October 2009

"Shock and Vibration—Data Acquisition" Chapter 13 of Harris' *Shock and Vibration Handbook*, 2010

"Acquiring and Analyzing Pyrotechnic Test Data The Right Way," *Sound and Vibration Magazine*, September 2008

"Comments on Education – Revisiting an Old Topic and Starting a New One. an editorial published in *Sound and Vibration Magazine*, September 2008.

"More on Engineering Education – A Renaissance in the Offing?" editorial published in *Sound and Vibration Magazine*, March 2006.

"A Commentary on the State of Engineering Education," *Sound and Vibration Magazine*, July 2004.

"Test Data Anomalies—When Tweaking's OK," December 2003, *Sensors Magazine*.

"The Selection of Alias-Protection Strategies For Shock and Vibration Testing—Compromises and Tradeoffs," *Proceedings of the 78th Shock and Vibration Symposium*, San Destin FL, November 2001.

"Data Acquisition Systems for Audio-Frequency, Mechanical-Testing Applications—Recent Developments 2001," *Proceedings of the 78th Shock and Vibration Symposium*, San Destin FL, November 2001

"Recent Advances in Data Acquisition Systems for Audio-frequency, Mechanical-testing Applications," *Proceedings of the International Telemetry Conference*, Las Vegas NV, October 2001.

"Getting What You Want," *Sound and Vibration Magazine*, March 1999.

"Developments in Digital Data Acquisition/Analysis System Technology for Large-Scale, Structural-Dynamic Testing Facilities," April 1998, *Sound and Vibration Magazine* pp 18-22 (Also published in the *Proceedings of the 68th Shock and Vibration Symposium*, October 1997).

"Developments in Large-Scale, Audio-Frequency, Data Acquisition/Analysis System Technology," *Proceedings of the Aerospace Testing Symposium*, April 1997.

"The DA Time Bomb," an editorial, 1997 *Sensors Magazine* Data Acquisition Special Issue.

"The COTS Software Issue Revisited/The Power of Positive Complaining," an editorial, *Sound and Vibration Magazine*, March 1997.

"Commercial-Off-The-Shelf (COTS) Software Systems for Data Acquisition and Analysis...Love Affairs and Land Mines," an editorial, *Sound and Vibration Magazine*, April 1996.

"A Proposed Method to Standardize Shock Response Spectrum (SRS) Analysis," March 1996, Aerospace Testing Symposium, Manhattan Beach, CA.

"Why Shock Measurements Performed at Different Facilities Don't Agree," October 1995, 66th Shock and Vibration Symposium *Proceedings*, Biloxi, MS.

"Interpolation of Sparse Time History Data," 65th Shock and Vibration Symposium *Proceedings*, October 1994, San Diego, CA.

More than 40 additional papers were published before 1994 in the areas of digital control, modal testing, structural stability, data acquisition techniques, and instrumentation.