

TIMOTHY C. HANSHAW

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EDUCATION

MASTER OF SCIENCE, Washington State University, Pullman, WA, 1998. Electrical Engineering with emphasis in Digital Signal Processing and Control System Design. (GPA 4.0/4.0)

MASTER OF SCIENCE, University of Arizona, Tucson, AZ, 1986. Mechanical Engineering with emphasis in Computational Fluid Dynamics. (GPA 3.5/4.0)

BACHELOR OF SCIENCE, University of Arizona, Tucson, AZ, 1984. Aerospace Engineering. (GPA 3.24/4.0)

EXPERIENCE

HANSHAW VIRTUAL UNIVERSITY, Manager, Pullman, WA. 2013 to present.

- **Educational Content Generation:** Develop passive and interactive educational materials for on-line Science, Technology, Engineering, and Math (STEM) curricula.

ELECTRICAL ENGINEERING DEPARTMENT, Washington State University, Graduate Assistant and Instructor, Pullman, WA. 1995 to 2018.

- **Teaching:** Instructor for first and second-semester circuits courses, introductory digital logic course, assembly programming course, introductory electromagnetics course, introductory electronics laboratory class, and senior-level control theory class.
- **Research:** Application of signal processing techniques (deconvolution, wavelets) to nondestructive evaluation test data of composite materials.

DIGILENT, INC. Educational Material Developer, Pullman, WA, 2006 to 2013.

- **Educational Content Creation:** Created video and written educational materials for electrical engineering students. Materials included laboratory experiments using Digilent hardware.

MECHANICAL ENGINEERING DEPARTMENT, University of Idaho, Instructor, Moscow, ID. 2001 to 2005.

- **Teaching:** Instructor for sophomore-level engineering dynamics class (ENGR220) and junior-level dynamic systems modeling class (ME313).

ROCKWELL INTERNATIONAL, ROCKETDYNE DIVISION, Member of Technical Staff, Canoga Park, CA. 1987 to 1995.

- **Analysis:** System Dynamics mathematical and computer modeling, with emphasis on acoustics, fluid flow phenomena, and fluid/structure interaction.
- **Test Support:** Support component and system cold-flow and hot-fire testing. Specify instrumentation requirements, review data, correlate analytical predictions with test data.
- **Project Engineering:** Planned analysis tasks, prepared budget and schedule estimates for proposals, supervised technical activities.

MECHANICAL ENGINEERING DEPARTMENT, University of Arizona, Graduate Assistant, Tucson, AZ. 1985 to 1986.

- **Research:** Computational Fluid Dynamics analysis of nonlinear, incompressible flow phenomenon using the Finite Element Method.

AWARDS

1. Outstanding teaching faculty member, Voiland College of Engineering and Architecture, 2014-2015.
2. Outstanding electrical engineering instructor, Washington State University, 2006
3. Outstanding College of Engineering and Architecture teaching assistant, Washington State University, 2000.
4. Outstanding electrical engineering teaching assistant, Washington State University, 1999 and 2000.

PUBLICATIONS

1. T.C. Hanshaw, M.J. Anderson, and C.S. Hsu, "An H_∞ Deconvolution Filter and its Application to Ultrasonic Nondestructive Evaluation of Materials", *ISA Transactions*, Vol. 38, No. 4, pp. 323-335, 1999.
2. T.C. Hanshaw, J.A. Daniels, C.S. Hsu, and M.J. Anderson, "Recursive Application of Cross-Correlation for Extraction of Sparse Impulse Trains from Ultrasonic Nondestructive Evaluation Data", *International Conference on Signal Processing and Technology*, Orlando, Florida, 1999.
3. T.C. Hanshaw, C.S. Hsu, and M.J. Anderson, "Analysis of Ultrasonic Nondestructive Evaluation Data Using Singular Value Decomposition of the Hankel Data Matrix", *138th meeting of the Acoustical Society of America*, Columbus, Ohio, 1999.
4. T.C. Hanshaw, C.S. Hsu, and M.J. Anderson, "Identification of Layered Material Properties Using Wavelet Transform of Ultrasonic Data", *IEEE International Conference on Control Applications*, Anchorage, Alaska, 2000, pp. 797-801.
5. Manning, C., Gross, M., Hanshaw, T., Kirlin, R., Samuels, A., "Compact Interferometers for Chemical and Biological Agent Detection", *Proceedings of the SPIE*, Volume 5268, pp. 125-136, 2004.
6. Bechtel, F.K., Hsu, C.S., Hanshaw, T.C., US patent 7,047,156 B1, "Method for Estimating Compliance at Points Along a Beam from Bending Measurements", 2006.

Bio:

Tim Hanshaw is manager of MathSmith, LLC, where he supervises development of online platforms for active learning and assessment in STEM education. Tim also has twenty years of experience teaching electrical and mechanical engineering at both Washington State University and the University of Idaho. Prior to his teaching career, Tim spent nine years doing transient analysis of rocket engine systems at the Rocketdyne division of Rockwell International.

Tim has a BS in Aerospace Engineering and an MS in Mechanical Engineering, both from the University of Arizona. He also has an MS in Electrical Engineering from Washington State University.