

Curriculum Vitae

Timothy A. Doughty

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OBJECTIVE:

An opportunity to teach and conduct research in the areas of nonlinear vibrations, dynamics, acoustics, system identification, and signal processing

EDUCATION:

Ph.D. Mechanical Engineering, Purdue University, 2002.

Dissertation Topic: An investigation in identifying contributions of modes in nonlinearly vibrating structures. Identification methods were developed and tested in simulation and applied to experimental systems.

Advisors: Patricia Davies and A. K. Bajaj

M.S. Mechanical Engineering, Washington State University, 1993.

Thesis Topic: An investigation in enhancing the performance of Trans-Spectral Coherence calculations through improved Fast Fourier Transform Algorithms. Effectiveness demonstrated in predicting chaotic behavior in simulations with the Duffing Equation.

Advisor: P. G. Vaidya

B.S. Mechanical Engineering, Washington State University, 1991.

Awarded *Outstanding Senior* for the department of Mechanical Engineering.

Concentration in nonlinear dynamics, acoustics, and fluid flow.

EXPERIENCE

2003 – Present *Laboratory Instructor*

Picker Engineering Program, Smith College

Responsibilities include:

- _ developing and teaching all departmental laboratories for the nation's first engineering program at a women's college.

2002 – 2003 *Visiting Assistant Professor*

School of Mechanical Engineering, Purdue University

Responsibilities include:

- _ working as lead instructor developing and presenting lecture for a required course in Measurement Systems
- _ generating homework and exams, assessing and assigning final grades
- _ organizing and delegating duties to a team of teaching assistants
- _ working with a senior lecturer and teaching assistant team for an on site and distance learning graduate course on Dynamics

1994 – 2002 *Lead Teaching Assistant*

School of Mechanical Engineering, Purdue University

Responsibilities include:

- _ training and managing a team of teaching assistants for a required course and an associated lab on Measurement Systems

- _ conceiving and overseeing several individual and group research projects at both the instructor and student levels
 - _ organizing and conducting weekly meetings with the lecturers, teaching assistants, and technical support staff
 - _ developing and assessing student technical writing skills
 - _ ultimately lecturing the course for three semesters
- 1997 – 1998 *Graduate Research Assistant*
School of Mechanical Engineering, Purdue University
 - _ developing system identification techniques for nonlinear structures undergoing nonstationary excitation
- 1991-1993 *Graduate Research Assistant*
Mechanical Engineering, Washington State University
 - _ developing signal processing methods to enhance coherence estimates
- 1991-1993 *Teaching Assistant / Laboratory Instructor*
Mechanical Engineering, Washington State University
 - _ organizing, lecturing, writing exams, assessing and assigning final grades for a required undergraduate vibrations laboratory

PUBLICATIONS:

***"An Experimental Study of Parametrically Excited Cantilever Beam and System Identification of Nonlinear Models," **Doughty, T. A.**, Davies, P., and Bajaj, A. K., *ASME Design Engineering Technical Conferences, Chicago, September 2003.*

"System Identification of Modes in Nonlinear Structures," **Doughty, T. A.**, *Ph.D Thesis, Purdue University, West Lafayette IN, 2002.*

"A Comparison of Three Techniques Using Steady-State Data to Identify Nonlinear Modal Behavior of an Externally Excited Cantilever Beam," **Doughty, T. A.**, Davies, P., and Bajaj, A. K., *Journal of Sound and Vibration, 249(4), 2002, 785-813.*

"Noise Effects in Nonlinear System Identification with Applications to Structures and Systems with Viscoelastic Elements," Patricia Davies, Rong Deng, **Timothy Doughty**, and A. K. Bajaj. *Proceedings of IUTAM Symposium Nonlinear Stochastic Dynamics*

"An Evaluation of Three Techniques for System Identification of Modes in Nonlinear Structures," **Doughty, T. A.**, Davies, P., and Bajaj, A. K., *ASD 2000 Advances in Structural Dynamics, Hong Kong, December 2000.*

"A Study of the Premonitions of Chaos," P.G. Vaidya, **T. Doughty**, and Rong He *ASA 124th Meeting, New Orleans, October 1992.*

"Development and Application of a Leakage Correction Technique for Experimental Nonlinear Study," **Doughty, T. A.**, *Masters Thesis, Washington State University, Pullman WA 1993.*

AWARDS:

- _ Magoon Award for outstanding teaching: awarded for lecturing, 2002
- _ Magoon Award for outstanding teaching: awarded for performance as a laboratory instructor 1997, 1999, 2000, and 2001.
- _ Outstanding Senior: Mechanical and Materials Engineering, Washington State University, Graduating class of 1991
- _ Wright Schuchart Scholarship: 1990 and 1991.