

CURRICULUM VITA

(January 2006)

Sridhar Krishnaswamy

Professor

Department of Mechanical Engineering

Northwestern University

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EDUCATION

Ph.D in Aeronautics with a minor in Materials Science 1989
California Institute of Technology, Pasadena, CA 91125.

M.S. in Aeronautics 1984
California Institute of Technology, Pasadena, CA 91125.

B.Tech in Aeronautics 1983
Indian Institute of Technology, Madras, India.

WORK EXPERIENCE

Professor of Mechanical Engineering Sep 2001 - present
Northwestern University

Associate Professor of Mechanical Engineering Sep 1996 – Aug 2001
Northwestern University

Academic Visitor in Engineering Science Sep 1998 – Mar 1999
Oxford University (on sabbatical from NU)

Assistant Professor of Mechanical Engineering Sep 1990 – Aug 1996
Northwestern University

Research Engineer in Applied Mechanics Dec 1989 - Aug 1990
University of California, San Diego

Research Fellow in Aeronautics Dec 1988 - Nov 1989
California Institute of Technology

AWARDS AND HONORS

- Keynote Speaker ICCES 2005, Dec 2005, Chennai, India
- Keynote Speaker Advanced NDE Conference, Nov 2005 Jeju, Korea
- Best paper nomination for “Acoustic Nonlinearity Measurements for Fatigue Damage Monitoring,” SPIE 2005
- Keynote Speaker, ICCES 2004
- Invited Speaker, Asia Pacific Conference on NDT 2003, Nov 2003
- Invited Speaker, Gordon Research Conference, Jun 2003
- Invited Speaker, Ultrasonics 2001 Symposium, July 2001
- Invited Speaker, OSA Annual Meeting, Oct 2001
- Paper selected for inclusion in SPIE’s Milestone Series Compendium- Applied Optics 1996: ‘Holographic Interferometry’
- ASG Faculty Honor Roll nomination (1995-96)
- Paper selected for inclusion in SPIE’s Milestone Series Compendium - Optical Engineering 1993: ‘Speckle Interferometry’
- Ernest Sechler Memorial Award (1989) for ‘most significant contribution to teaching and research’; from the California Institute of Technology, Pasadena, California.
- Pennathur Medal (1978) for ‘academic excellence’; from Madras Christian College, Madras, India.
- Merit Prize and Certificate (1977) for ‘placing second in the state-wide high-school diploma examination’; from the Government of Tamil Nadu, India.

PATENTS ISSUED: US patent No: 5,481,356 issued for "Apparatus and Method for Nondestructive Testing Using Additive-Subtractive Phase Modulated Interferometry" to Bruno F. Pouet, Tom C. Chatters and Sridhar Krishnaswamy. Technology licensed to Laser Technology Inc, PA in 1994.

PROFESSIONAL ACTIVITIES

Editorships:

- Associate Editor, Journal of Applied Mechanics, ASME (2005 -)
- Editorial Board, International Journal of NDT&E, Elsevier, UK. (1996 - 2003)

External Committees:

- Dynamic Response of Materials committee of the ASME –AMD
- Experimental Mechanics committee of the ASME - AMD
- NDE division of the ASME
- Member of the Regional Advisory Committee of the Microfabrication Applications Laboratory of the University of Illinois, Chicago, (2000-2004)

Professional Associations:

- ASME - American Society of Mechanical Engineers
- SPIE - The International Society for Optical Engineering

Lectures And Talks

- Central Glass and Ceramic Research Institute, Kolkata, India, Dec 21, 2005, Invited lectures – “Mechanical Characterization of Thin Films” and “Fiber Bragg Grating Sensors”
- GE – John Welch Technology Centre, Bangalore, India, Dec 19, 2005, invited lecture – “Ultrasonic Characterization of Thin Films and Coatings”
- ICCES 2005, Madras, India, Dec 2005, Invited Keynote lecture – “Photoacoustic Characterization of Thin Films”
- Advanced Nondestructive Evaluation Conference, Jeju Island, Korea, Nov 2005, Invited Lecture - “Sensors for Structural Health Monitoring”
- International Conference on Smart Materials, Structures, and Systems, Bangalore, India, July 2005, Invited Lecture - “Adaptive Demodulation of FBG sensors for Smart Structures”
- University of California, Irvine, 08/28/05, “Ultrasonics Methods of Materials Characterization”
- FAA JAMS Annual Meeting Wichita, KS, 05/24/05, “Structural Health Monitoring of Composite Structures”
- SPIE Smart Structures and NDE Conference, San Diego, CA, Mar 2005, “Acoustic Nonlinearity Measurements for Fatigue Damage Monitoring”
- NSF Indo-US Workshop on Smart Structures, Mumbai, India, Dec 2004 – “Adaptive TWM Demodulation of Fiber Bragg Grating Sensors”
- Brown University, Oct 2004 - “Photoacoustic Characterization of Thin Films”
- European Structural Health Monitoring Workshop, Munich, Germany, 7/2004 – “A Conceptual HUMS system for fatigue damage monitoring of rotorcraft”
- ICCES 2004, Madeira, Portugal, 7/2004, Invited Keynote lecture – “Ultrasonic Characterization of Thin Films”
- Asian Pacific Conference on Nondestructive Testing, Jeju Island, Korea, 11/2003, Invited lecture- “Mechanical Characterization of Thin Film Coatings”
- Pusan National University, Pusan, Korea, 10/2003, Invited lecture – “Laser Ultrasonics”
- Gordon Research Conference on Photoacoustic and Photothermal Phenomena New London, New Hampshire, 6/2003, Invited Speaker - “Photoacoustic Imaging using Multiplexed Two Wave Mixing Interferometry”
- SPIE Smart Structures and NDE Conference, Long Beach, CA, 3/2003, “Photoacoustic and Contact Acoustic Microscopy Characterization of Thin Films and Coatings”
- SPIE Smart Structures and NDE Conference, Long Beach, CA, 3/2003, “Mechanical Characterization of Nanostructured Films and Coatings”
- Johns Hopkins University, Jan 2003 – “Recent Developments in Laser Ultrasonics”
- ASME Winter Annual Meeting New Orleans, 11/2002 – “Characterization of Free Standing Thin Films Using Photoacoustic Microscopy”
- FAA AACE Annual Meeting Wichita, KS, 10/2002, “Micro-Optical Sensors for Integrated Condition Monitoring”
- KSNT-KSME Joint Meeting, Busan, S. Korea, Aug. 22, 2002, Invited lecture- “Laser Ultrasonics for Characterization of Thin Film MEMS Structures”

- Busan National University, Busan, S. Korea, Aug. 21, 2002, Invited seminar: “Recent Developments in Laser Ultrasonics”
- Hanyang University, Seoul, S. Korea, Aug. 19, 2002, Invited seminar: “Optical Methods for Materials Characterization”
- USNCAM-14, Virginia, June 26, 2002, ‘Photo-acoustic Microscopy Characterization of Thin Films and Coatings’
- ONR Composites Review Meeting, May 6, 2002 “Scanning Laser Source Technique for Composite Sandwich Structure Assessment”
- AACE Program Review Meeting, Cincinnati, Nov 14, 2001 “Micro-optical sensors for condition monitoring of aircraft”
- ASME Winter Annual Meeting, New York, Nov 13, 2001, - “ Laser ultrasonic characterization of coatings”
- Korean Research Institute for Science and Standards (KRISS) Daejeon, S. Korea, Oct 10-11, 2001, “Short Course on Laser Ultrasonics” (6 lectures)
- OSA Annual Meeting, Oct 2001 - Invited Lecture: “Multiplexed two-wave mixing interferometry: applications to laser ultrasonics”
- Ultrasonics 2001 Symposium, Delft, Netherlands , June 2001 - Invited Lecture: “Multiplexed Adaptive Interferometers and Their Applications”
- SPIE, Munich Germany, June 2001, “Photoacoustic Characterization of Thin Film MEMS”
- SPIE, Newport Beach, March 7, 2001, “Distributed Photoacoustic System for Cure Monitoring of Composites”
- Acoustical Society of America Annual Meeting, Dec. 7, 2000 - “Optical Methods of Vibration Monitoring”
- American Society of Mechanical Engineers – IMECE, Nov. 8, 2000 - “Laser Ultrasonic Monitoring of Cure of Composites”
- AFOSR Structures and Metallic Materials Workshop, St. Louis, Missouri, Oct. 13, 2000 – “Laser Ultrasonic Methods”
- Applied Photonics, Europto/ SPIE, Glasgow, May 23, 2000 ‘Fiber-Optic Laser Ultrasound Generators’
- ONR Workshop, Washington DC, May 2, 2000 - ‘Ultrasonic Diagnostics of Sandwich Composite Structures’
- Materials Science Domain Dinner, Northwestern University, April 26, 2000 - ‘Photo-acoustic Phased Array Imaging’
- Nanotechnology / MEMS Workshop, Northwestern University, March 23, 2000 - ‘Acousto-Optical Methods of Materials Characterization’
- Airworthiness Assurance Meeting, FAA, Kansas City, Nov 17, 1999 - ‘SLS’
- AlliedSignal, Phoenix, Nov 3, 1999 – Invited lecture ‘Crack Detection in Turbine Disks’
- AFOSR Workshop, Dayton, OH, Sep. 29, 1999, ‘Fiber-Optic Sagnac Interferometer for Smart Structures’,.
- Georgia Tech, Sep 14, 1999 - ‘Scanning Laser Source Technique’
- Joint IEEE-KSNT Workshop, Pusan National University, S.Korea, May 1999 – “Laser Ultrasonics”

- University of Oxford / BNFL, UK, 1999 – “Laser Ultrasonics for Nondestructive Evaluation”
- University of Oxford, Engineering Science Lecture Series, UK, Nov 1998 – “Lectures on Nondestructive Evaluation – Short Course”
- University of Poitiers, France, Sep 1998 – “Adaptive Interferometry”
- University of Illinois at Chicago, 1997 – “Fiber Optic Sensors”
- ONERA, Paris, France, 1996 - "Fiber-Optic Ultrasonic Sensors"
- ASNT summer school, Banff, Canada, 1995 – “Fiber Optic Sensors for Process Monitoring”
- NASA, Langley, 1993 – “Additive-Subtractive Speckle Interferometry”
- FAA Tech Center, Atlantic City, 1992 -“Speckle Interferometry in Nondestructive Evaluation”
- New Mexico State University, 1992 – “Speckle Interferometry”
- University of Illinois at Urbana-Champaign, 1991 – “K-dominance in Dynamic Fracture”
- Georgia Institute of Technology, 1991 – “Coherent Gradient Sensor Measurements in Fracture Mechanics”
- University of California, Berkeley, 1991 – “Coherent Gradient Sensor Experiments in Dynamic Fracture”
- University of Colorado, Boulder, 1990 – “K-dominance in Dynamic Fracture”
- University of Pennsylvania, 1990 – “Dynamic Fracture Experiments”

RESEARCH INTERESTS

Research interests are in optical and ultrasonic methods of structural health monitoring and nondestructive characterization of materials and structures. Past work in the area of optical metrology has involved the development of a variety of optical techniques including:

- the method of bifocal caustics (1987-88),
- the coherent gradient sensor (1988-89),
- a polariscope/shearing interferometer (1993-94),
- dynamic two-beam speckle interferometers (1990),
- noise-insensitive electronic speckle interferometers (1991-96), and
- dynamic holographic interferometric systems (1996-98).

Recently working on:

- photo-acoustic characterization of thin films and coatings (1998-);
- phased-array laser ultrasonic imaging systems based on multiplexed wave-mixing in photorefractive crystals (1998-);
- micro-opto-electro-mechanical sensors (2000-);
- scanning photoacoustic techniques for nondestructive detection of flaws in structures (1997-);

- fiber-optic sensors for smart structures (1993-);
- characterization of fatigue damage through acoustic nonlinearity measurements;
- diagnostics and probabilistic prognosis for structural health monitoring.

GRADUATE RESEARCH GROUP MEMBERS

Graduate Students:

- Yunyoung Kim PhD student (2004-)
Thesis Topic: Kinetically-assisted island formation in hetero-epitaxial structures
- Li Sun PhD student (2003-) (co-advisor with J.D. Achenbach)
Thesis Topic: Ultrasonic Nonlinearity for Fatigue Damage Monitoring
- Yi Qiao PhD student (2003-)
Thesis Topic: Two-wave Mixing Demodulation of Fiber Bragg Grating Sensors
- Feifei Zhang PhD student (2002-)
Thesis Topic: Photothermoacoustic Characterization of Thin Films
- Younghoon Sohn PhD 2005
Thesis: Near-Field Scanning Photoacoustics
- Yi Zhou: PhD 2004
Thesis: Photoacoustic Phased Array Imaging
- Carmen Hernandez: PhD. 2003
Thesis: Photoacoustic Microscopy
Currently: Assistant Professor, Univ, Ill. Chicago
- Hansuk Lee: Ph.D. 1998
Thesis: Quasi-static Subinterfacial Crack Propagation
M.S. 1994
Thesis: An Experimental Study of the Interfacial Crack Problem
Currently: Founder and CEO, AppliedMicroOptics, Seattle, WA
- Masoud Ghandehari Ph.D. 1998 (co-advisor Prof. S. Shah)
Thesis: Experimental Study of Fracture in Concrete Using Full-Field Optical Interferometry
Currently: Associate Professor, Brooklyn Poly University, NY
- John F. Dorigi: Ph.D. 1997 (co-advisor Prof. J.D. Achenbach)
Thesis: Fiber Optic Sensors for Ultrasound Detection
M.S. 1994
Thesis: Fiber Optic Sensors for Ultrasound Detection
Currently: Lightwave Support Engineer, Agilent
- Yasuaki Nagata Ph.D. 1995 (co-advisor Prof. J.D. Achenbach)
Thesis: Computed Tomography Using Laser Based Ultrasonics
Currently: with Nippon Steel, Japan
- Tom Chatters Hale: Ph.D. 1994
Thesis: Noise Reduction Techniques in Optical Nondestructive Evaluation
Currently: Senior Scientist, Los Alamos National Labs
- Kuo-Tzen Chiao M.S. 1993
Thesis: Optical Mapping of Fracture Specimens Using CGS

Post-Doctoral Research Fellows:

- Sang-woo Choi PhD. Mechanical Engineering (2002)
Pusan National University, S. Korea
NU Work (2005-) : Structural Health Monitoring of Composites
- Gabriela Petculescu PhD. Physics (2003)
Ohio University, USA
NU Work (2004 -) : Structural Health Monitoring of Composites
- Salil Kulkarni PhD Applied Mechanics (2003)
Cornell, USA
NU Work (2003 -) : Ultrasonic nonlinearity and fatigue damage growth
- Todd W. Murray: Ph.D. Materials Science (1998)
Johns Hopkins, USA
NU work (1998-2000): thin film photoacoustics, photorefractive systems
Currently: Assistant Professor, Mech Engg, Boston University
- Pavel Fomitchov: Ph.D. Applied Optics (1994),
Institute of Fine Optics and Mechanics, St. Petersburg, Russia
NU work: (1994-1999) Photoacoustic methods
Currently: Group Leader, GE Global Research.
- Hemmo Tuovinen: Ph.D. Physics (1997)
University of Joensuu, Finland
NU work (1998-1999): adaptive photorefractive systems
Currently: Senior Scientist, Univ. Joensuu, Finland
- Joon-soo Bae: Ph.D. Mechanical Engineering (1998)
Korea University, Seoul, S. Korea
NU work (1998-2000): sub-interfacial crack propagation
Currently: Samsung Corp, Korea
- Bruno Pouet: Ph.D. Applied Physics (1991)
Paris VI, France
NU work (1991-1997): Dynamic holography; Full-field speckle interferometry
Currently: Co-Founder and Director, BossaNova Technologies, Los Angeles
- Liusheng Wang: Ph.D. Mechanical Engineering (1994)
Nottingham-Trent University, United Kingdom
NU work (1994-1997): Speckle interferometry; Nondestructive evaluation
Currently: Design and Development Manager, Advanced Photonic Technologies, Corning Inc, CA

VISITING SCHOLAR

- Joon-Hyun Lee PhD
(Tohoku University, Japan)
NU work (2003 -) : Laser Ultrasonics

SPONSORED RESEARCH PROJECTS

	Project	Sponsor	Period	Role	Role Percent	Total Project Budget	Credited to SK
1	Holography and Shearography	FAA/CASR	Mar 1991 - Feb 1992	PI	100%	\$113,025	\$113,025
2	Optical Interferometry	FAA/CASR	Mar 1992 - Sep 1992	PI	100%	\$80,200	\$80,200
3	Optical Interferometry	FAA/CASR	Oct 1992 - Feb 1993	PI	100%	\$104,282	\$104,282
4	Mechanics of Smart Structures	AFOSR	Jun 1992 - May 1995	co-PI	50%	\$240,903	\$120,452
5	Dynamic Holography	AFOSR	Mar 1993 - Apr 1997	PI	100%	\$247,379	\$247,379
6	Optical Interferometry	FAA/CASR	Feb 1994 - Jan 1995	PI	100%	\$107,436	\$107,436
7	Optical Interferometry for Crack Detection	FAA/CASR	Feb 1994 - Jan 1995	PI	100%	\$78,913	\$78,913
8	ASPM-Phase II Tech Transfer	FAA/CASR	Feb 1994 - Jan 1995	PI	100%	\$56,800	\$56,800
9	Photoelasticity cum Shearing Interferometer	NSF	May 1994 - Apr 1997	PI	100%	\$99,533	\$99,533
10	Optical Interferometry	FAA/CASR	May 1995 - Apr 1996	PI	100%	\$90,200	\$90,200
11	Fiber Optic Ultrasound Sensors for Smart Structures Applications	AFOSR	Apr 1996 - Apr 1999	PI	50%	\$254,519	\$127,260
12	Advanced Instrumentation and Measurements for Early NDE of Aging Aircraft	AFOSR	Apr 1997 - Jun 1998	PI	50%	\$80,000	\$40,000
13	Student Participation in AACE Activities	Illinois HECA	Sep 1997 - Nov 1999	co-PI	50%	\$326,000	\$163,000
14	Experimental Investigation of Subinterfacial Cracks	NSF	Sep 1997 - Aug 2000	PI	100%	\$155,411	\$155,411
15	Fiber Optic Ultrasound Sensors for Process Monitoring of Composites	ONR / IPC	Jan 1998 - Dec 1998	co-PI	50%	\$70,000	\$35,000
16	Laser Based Ultrasonics for Detection of Cracks in Turbines	FAA/AACE	Sep 1998 - Nov 2000	co-PI	50%	\$85,000	\$42,500
17	Laser Ultrasonic Sensors with Near PZT sensitivity	AFOSR / DURIP	Mar 1998 - Oct 2000	co-PI	50%	\$198,000	\$99,000
18	Non-contact ultrasonic Diagnostic Systems	AFOSR	Mar 1998 - Oct 2001	co-PI	50%	\$300,000	\$150,000
19	Student Intern Program for Emerging NDE Techniques	FAA/AACE	July 1998 - Nov 2000	PI	50%	\$25,000	\$12,500
20	Fiber Optic Ultrasound Sensors for Process Monitoring of Composites	ONR / IPC	Jan 1999 - Jun 2000	co-PI	50%	\$60,000	\$30,000

	Project	Sponsor	Period	Role	Role Percent	Total Project Budget	Credited to SK
21	Sagnac Ultrasound Sensor for GE Applications	GE CRD	May 1999 - Dec 1999	PI	50%	\$55,320	\$27,660
22	Fiber Optic Ultrasound Sensors for Process Monitoring of Composites	ONR / IPC	June 2000 - Aug 2001	co-PI	50%	\$90,000	\$45,000
23	Non-contact laser ultrasonic characterization of thin films and coatings	NSF	Mar 2000 - Feb 2003	PI	100%	\$251,506	\$251,506
24	Scanning Laser Source Technique for Crack Detection in Turbines	FAA/AACE	Nov 2000 - Oct 2003	co-PI	50%	\$175,296	\$87,648
25	Photoacoustic Characterization of Coatings	NIST / Caterpillar	Apr 2001 - Oct 2004	PI	100%	\$142,000	\$142,000
26	Integrated Microsensors for Condition Monitoring	FAA/AACE	Sep 2001 - Sep 2004	PI	50%	\$288,876	\$144,438
27	Femtosecond Photoacoustic Equipment for Materials Characterization	AFOSR / DURIP	Jun 2001 - May 2002	PI	100%	\$200,000	\$200,000
28	Feasibility of Developing and Implementing a Fatigue Monitoring System for Rotorcraft	FAA	Jun 2003 - Jan 2005	Co-PI	33%	\$199,950	\$65,984
29	Improved Reliability of Composite Structures Through Non-Destructive Evaluation	ONR	Jan 2003- Dec 2003	Co-PI	50%	\$50,000	\$25,000
30	<i>Adaptive Array Demodulation of Bragg-Grating and Interferometric Sensors for Health Monitoring of Marine Structures</i>	<i>ONR</i>	<i>Oct 2003 - Sep 2007</i>	<i>PI</i>	<i>100%</i>	<i>\$400,000</i>	<i>\$400,000</i>
31	<i>Structural Health Monitoring for Composite Structures</i>	<i>FAA / JAMS</i>	<i>Sep 2004 - Sep 2006</i>	<i>Co-PI</i>	<i>33%</i>	<i>\$150,000</i>	<i>\$49,500</i>
32	<i>Structural Health Monitoring for Life Management of Aircraft</i>	<i>FAA</i>	<i>Sep 2005 - Aug 2005</i>	<i>Co-PI</i>	<i>50%</i>	<i>\$100,000</i>	<i>\$50,000</i>
33	<i>Real-Time Dry-Contact Ultrasonic Imaging System for Rapid Nondestructive Inspection of Aircraft Structures</i>	<i>ONR</i>	<i>July 2004 - Dec 2007</i>	<i>PI</i>	<i>90%</i>	<i>\$1,380,000</i>	<i>\$1,242,000</i>
34	<i>Sensors: Adaptive Fiber Optic Sensor Networks for Monitoring Dynamic Strains</i>	<i>NSF</i>	<i>Sep 2004 - Aug 2007</i>	<i>PI</i>	<i>100%</i>	<i>\$270,000</i>	<i>\$270,000</i>
	TOTAL:					\$6,525,549	\$4,953,626

Note:

Ongoing projects are in italics.

TEACHING

Year	Course	# Students	CTEC score
		917	
1991 Winter	Mech_Eng C62: Stress Analysis	33	3.6/4.0
1991 Spring	Civ_Eng B19: Continuum Mechanics	15	4.0/4.0
1991 Fall	Civ_Eng B16: Mechanics of Materials	26	3.8/4.0
1992 Winter	Mech_Eng C62: Stress Analysis	34	3.7/4.0
1992 Winter	Civ_Eng B16: Mechanics of Materials	27	3.6/4.0
1992 Fall	Civ_Eng B12: Mechanics	27	3.9/4.0
1993 Winter	Mech_Eng C62: Stress Analysis	43	3.8/4.0
1993 Spring	Mech_Eng B58: Experimental Engineering	10	3.5/4.0
1993 Fall	Civ_Eng C17: Mechanics of Continua	13	3.7/4.0
1994 Winter	Mech_Eng C62: Stress Analysis	26	3.5/4.0
1994 Fall	Civ_Eng C17: Mechanics of Continua	13	3.7/4.0
1995 Winter	Mech_Eng C62: Stress Analysis	37	3.8/4.0
1995 Spring	Civ_Eng B16: Mechanics of Materials	49	3.5/4.0
1996 Winter	Civ_Eng C17: Mechanics of Continua	11	3.7/4.0
1996 Winter	Mech_Eng C62: Stress Analysis	24	3.5/4.0
1996 Spring	Civ_Eng B19: Continuum Mechanics	20	3.8/4.0
1997 Winter	Mech_Eng C62: Stress Analysis	30	5.4/6.0
1997 Winter	Gen_Eng B05-2: Engineering Analysis -2	34	4.8/6.0
1997 Spring	Civ_Eng B19: Continuum Mechanics	11	5.8/6.0
1998 Winter	Mech_Eng C62: Stress Analysis	19	5.6/6.0
1998 Winter	Gen_Eng B05-2: Engineering Analysis -2	38	5.6/6.0
1999 Spring	Mech_Eng 362: Stress Analysis	22	5.7/6.0
1999 Fall	Gen_Eng 205-3: Engineering Analysis-3	19	4.3/6.0
2000 Spring	Mech_Eng 362: Stress Analysis	38	5.6/6.0
2000 Spring	Mech_Eng 495: Acousto-Optical Methods of Materials Characterization	8	4.8/6.0
2000 Fall	Gen_Eng 205-3: Engineering Analysis -3	28	4.9/6.0
2001 Spring	Mech_Eng 362: Stress Analysis	39	5.3/6.0
2002 Spring	Mech_Eng 362: Stress Analysis	39	5.5/6.0
2002 Fall	Gen_Eng 205-3: Engineering Analysis -3	41	4.8/6.0
2003 Spring	Mech_Eng 362: Stress Analysis	36	5.3/6.0
2004 Spring	Mech_Eng 362: Stress Analysis	40	5.5/6.0
2004 Spring	ME495: Photoacoustic Methods of Materials Characterization	6	5.8/6.0
2004 Fall	Gen_Eng 205-3: Engineering Analysis -3	36	4.2/6.0
2005 Spring	Mech_Eng 362: Stress Analysis	25	5.3/6.0
<i>CTEC Score is from Student Evaluation of Instructor</i>			

SERVICE

Northwestern University Committees:

- ME/BME Neural Engineering Search Committee 2004-2005
- Director of Graduate Studies in Mechanical Engineering 2001-2003
- McCormick P&T ad hoc committee 2004
- McCormick School Micro/Nano-fabrication facilities committee, 2001-2004
- McCormick P&T ad hoc committee 2002
- Graduate School Committee on Improving Communication, Language & Education, 2001
- McCormick School Graduate Study and Research Committee 2001-2003
- Graduate Admissions for Theoretical and Applied Mechanics, 1996-2001
- ME Shop Oversight Committee 1993-2000
- McCormick School Undergraduate Engineering Analysis Committee 1996-1998
- McCormick School Relations with Industry Committee 1992-1997
- ME Resources Self Study Committee 1993-1994
- Mechanics Colloquia organizer 1991-1993

Conferences Organized / Chaired:

- *Host Organizing Committee Member: ICCES 2005, Madras, India, Dec 2005*
- *International Organizing Committee Member: ANDE, Jeju, S. Korea, Nov 2005*
- Program Committee Member and Session Chair: SPIE NDE Meeting, March 2005
- Session Chairman: Asia Pacific Conference on NDT, Jeju Island, Korea, Nov 2003
- Session Chairman: ICCES-2004, Madeira, Portugal, July 2004
- Program Committee Member and Session Chair: SPIE NDE Meeting, March 2003
- Session chairman: USNCAM-14, Virginia, June 26, 2002
- Session chairman and organizer: ASME Congress 2001 - Symposium on 'Thin Films and Coatings', (sponsored by the ASME NDE Division)
- Session chairman: "Imaging Techniques" at Review of Progress in Quantitative Nondestructive Evaluation, July 29-Aug 3, 2001, Brunswick, Maine
- Program Committee Member and Session Chairman: SPIE Conference on "Advanced Nondestructive Evaluation for Structural and Biological Health Monitoring," 6-8 March, 2001, Newport Beach, CA.
- Session chairman: ASME-IMECE Winter Annual Meeting, Nov 7-9, 2000, Orlando, Florida.
- Session Organizer: 2000 National Manufacturing Week, Chicago, March 2000, 'Advances in Nondestructive Evaluation' (sponsored by ASME NDE Division)
- Session chair: Review of Progress in QNDE, Brunswick, Maine, 1996.
- Session Co-Chair: ASME 1995 Boston Symposium on 'Optical Methods in Vibration and Noise'.
- Session chair: Review of Progress in QNDE meeting, Snowmass, Colorado, 1994.

Journal Papers / Books Reviewed:

- AIAA Journal
- Applied Optics
- Applied Physics Letters
- Experimental Mechanics
- International Journal of Fracture
- IEE (European) Proceedings on Science, Measurement and Technology
- IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control
- ASME Journal of Electronic Packaging
- Journal of the Acoustical Society of America
- Journal of Applied Mechanics
- Journal of Applied Physics
- Journal of Engineering Materials Technology
- Journal of Mechanics and Physics of Solids
- Journal of Nondestructive Evaluation
- Journal of Nondestructive Testing and Evaluation
- Journal of Elastomers and Plastics
- Journal of Laser Applications
- Mathematics and Mechanics of Solids
- Measurement Science and Technology
- Mechanics of Materials
- Optics and Lasers in Engineering
- Optical Engineering
- Research in Nondestructive Evaluation
- Smart Materials and Structures
- Elsevier Publications (reviewed book proposals)
- Addison-Wesley (reviewed books)

Funding Agency Proposals Reviewed:

- National Science Foundation, CMS panels
- National Science Foundation, Thermal/Fluid Sciences
- National Science Foundation, SBIR – Electronics panels
- National Science Foundation, DMR
- Department of Energy
- Swiss Federal funding agency
- South Africa funding agency
- Science and Technology Center of Ukraine / Pacific National Labs, USA
- U.S. Civilian Research and Development Foundation (CRDF)
- State of South Carolina Research Fund
- Research Grants Council, Hong Kong