Dr. G. Song's Curriculum Vitae

University of Houston

Table of Contents

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Highlights of Dr. Song's CV

- Ph.D., Columbia University, 1995
- Assistant Professor, University of Akron, 1998-2002
  Promoted to Associate Professor with Tenure in April, 2002
- Associate Professor with Tenure, University of Houston, 2002-Present
- Received the Prestigious **Outstanding Technical Contribution Award** from the Aerospace Division of ASCE in 2008.
- Received the **Best Paper Award**, as a co-author, in the Intelligent Sensor and Actuator Symposium at the Earth and Space'08 conference.
- Graduated **7** Ph.D. students.
- Delivered **4 keynote speeches** and **58** invited talks, seminars, and short courses.
- Secured **$1, 700,650 External** Funding (Dr. Song's Credit), including **8 NSF awards** as PI or Co-PI.
- Published **65** peer-reviewed journal papers and **119** conference papers.
- Established a smart materials and structures curriculum that includes two graduate course, one undergraduate course, a supporting Smart Materials and Structures Laboratory (http://www.egr.uh.edu/smsl/), a remote laboratory extension (http://129.7.203.157/), postdoctoral training, graduate student training, and Research Experiences for Undergraduates (REU).
- Serving as an **Associate Editor** of ***Smart Materials and Structures***, a top journal in the field.

Part 1: Resume

Gangbing Song, Ph.D.

Associate Professor

Director, Smart Materials and Structures Laboratory

Department of Mechanical Engineering

University of Houston, Houston, Texas, 77204

Phone (713) 743-4525 - Fax (713) 743-4503 Email: gsong@uh.edu

Education

1991 – 1995 **Ph.D.,** Department of Mechanical Engr., Columbia University New York

Ph.D. Dissertation Title: "Robust Control and Adaptive-Robust Control of Uncertain Robot Manipulators"

1989 – 1991 **M.S.,** Department of Mechanical Engr., Columbia University New York

1985 – 1989 **B.S.,** Department of Energy Engineering, Zhejiang University P. R. C

Appointments

Aug'02 – Present **Associate Professor with Tenure**

Dept. of Mechanical Engineering, University of Houston, Houston, TX

Current major activities: Initialized smart materials research and education program and established a Smart Materials & Structure Laboratory at University of Houston

Current research interests:

- Smart materials and structures in general
- Structural vibration control in general.
- Active vibration control of civil structures using smart materials
- Health monitoring of civil structures using smart materials
- Active vibration control using piezoceramic materials.
- Active position and shape control using shape memory alloy materials.
- Passive vibration damping using piezoceramic materials and shape memory alloys.
- MR fluids and its applications.
- Control theory: robust control, adaptive control, and other controls.

Advising 5 graduate students: 3 Ph.D. candidates and 2 MS students.

Funding agencies: **NSF (including a CAREER Award, 2001), NASA, TSGC (Texas Space Grant Consortium), OAI (Ohio Aerospace Institute), HP, University of Houston**

Aug'02 – Aug'05 **Adjunct Associate Professor**

Dept. of Mechanical Engineering, University of Akron, Akron, OH

Mar'02 – Aug'02 **Associate Professor with Tenure**

2000 – Aug'02 **Director, Smart Materials and Structures Laboratory**

Aug'98 – Mar' 02 **Assistant Professor (Tenure track)**

Dept. of Mechanical Engineering, University of Akron, Akron, OH

- Established a Smart Materials and Structures Laboratory.
- Established a Smart Materials and Structures Research Program
- Initialized Smart Composite Research Program, a Collaboration between Mechanical and Civil Engineering Departments
- Taught Introduction to Smart Materials & Structures, Control of Smart Structures, Control System Design, System Dynamics and Response, and Design of Mechanic Systems.
- Funding agencies: **NSF (CAREER Grant, 2001), NASA, OSGC, and OBR, The University of Akron**.
- Graduated 7 graduate students

July 1996 – Aug 1998 **Assistant Research Professor (Non-tenure track)**

Aeronautics & Astronautics Dept., Naval Postgraduate School (NPS), Monterey, CA

Research projects involved:

- Flexible Spacecraft Vibration Control using Piezoelectric Material
- Vibration Control of a Cantilever Beam Using the Modular Control Patch (MCP)
- Flexible Spacecraft Vibration Reduction using Pulse-Width Pulse-Frequency Modulated Thruster
- Vibration Control of Space Truss Structure.
- Spacecraft Payload Vibration Isolation Platform
- Beam Shape Control Using Shape Memory Alloy Wires

July 1995 – June 1996 **Research Associate (Non-tenure track)**

***Mechanical Engineering Department, Naval Postgraduate School,* Monterey, CA**

Research projects and inventions involved

- Advanced Control of Electro-magnetic Bearing:
- Self-sensing Active Electro-magnetic Levitation and Bearing:
- A Microactuator with Active Electrostatic Levitation
- Friction Compensation for High Precision Motion Control:
- Articulated Mini-manipulator for Minimally Invasive Surgery (**US Patent**)

- Flexible Two-way Actuating Mechanism for End-effectors of Articulated Mini-manipulators:

Major Honors and Awards:

- **Outstanding Technical Contribution Award**, Aerospace Division of ASCE in 2008.
- **Best Paper Award**, as a co-author, in the Intelligent Sensor and Actuator Symposium at the Earth and Space'08 conferenceNSF (USA)
- **CAREER Award**, 2001
- **General Chair**, ASCE Earth and Space conference, 2010
- America Science and Engineering Who's Who, 1999.
- Naval Special Act Award, 1998.

Guest Professorship

- Guest Professor, Huazhong University of Science and Technology, China.
- Guest Professor, Wuhan University of Technology, China.
- Overseas Special Professor, Dalian University of Technology, China
- Guest Professor, Lanzhou University of Technology, China
- Guest Professor, Shenyang Jianzhu University, China

US Patent:

- Co-inventor, US Patent No.:5,810,716 – "Articulated Mini-manipulator for Minimally Invasive Surgery," Sept. 22, 1998.

MS Students Advised or Co-advised (Total 24)

1. LT. Brian Kelly, US Navy
2. LT. Scott Johnson, US Navy
3. LT. John Vlattas, US Navy
4. Capt. Brent Andberg, US Marine Corp.
5. LCDR. George Beavers, US Navy
5. LT. Danny Busch, US Navy
7. LCDR. Steve Schmidt, US Navy
8. LCDR. Nick Buck, US Navy
9. Ms. M. Vechery, University of Akron
10. Mr. V. Chaudhry, University of Akron
11. Mr. Ken Hull, University of Akron
12. Mr. V. Dhruva, University of Akron
13. Mr. B. Kotejoshyer, U. of Akron
14. Mr. Abhay Prasad, University of Akron
15. Mr. Vineet Sethi, University of Akron
16. Mr. Ning Ma, University of Akron
17. Ms. Xiaoqin Zhou, University of Akron
18. Mr. Ming Zeng, University of Akron
19. Mr. Juntao Fei, University of Akron
20. Mr. Jinqiang Zhao, University of Akron
21. Mr. K. Otero, University of Houston
22. Mr. R. Wongapiwatkul, U. of Houston
23. Mr. Z. Hu, University of Houston
24. Mr. C. Olmi, University of Houston

PhD Students Advised or Co-advised (Total 4)

1. Dr. V. Sethi, University of Houston
2. Dr. M. Xu, University of Akron
3. Dr. N. Ma, University of Houston
4. Dr. H. Gu, University of Houston
5. Dr. X. Zhao, Harbin Inst of Tech (Co-advisor)
6. Dr. M. Li, Harbin Inst of Tech (Co-advisor)
7. Dr. D. Cui, Dalian U of Tech. (Co-advisor)

Publication Highlights:

65 refereed journal papers and **119** conference papers.

Presentation Highlights:

- **4 Keynote Speeches** at international conferences
- **58 Invited Talks, Seminars, and Short Courses** at various universities

Committees Served

- **Organization Committee**, International Conference on Smart Materials and Nanotechnology in Engineering, **2008**, China.
- **Technical Chair** of Intelligent Sensors and Actuators Symposium, **Steering Committee** and **Technical Committee**, Eleventh Biennial International Conference on Engineering, Construction and Operations in Challenging Environments, **2008**, Los Angeles, CA.
- **International Scientific Committee**, International Conference on Smart Materials and Nanotechnology in Engineering, **2007**, China.
- **Local Organization Committee**, the World Forum on Smart Materials and Smart Structures Technology (SMSST '07), **2007**, China.
- **Organization Committee**, 4th China-Japan-US Symposium on Structural Health Monitoring and Control, Hangzhou, China, Oct. **2006**.
- **Steering Committee** and **Technical Committee**, Tenth Biennial International Conference on Engineering, Construction and Operations in Challenging Environments, **2006**, Houston, Texas.
- **Technical Committee**, Ninth Biennial International Conference on Engineering, Construction and Operations in Challenging Environments, **2004**, Houston, Texas.
- **International Committee Member**, IEEE International Symposium on Intelligent Control, conference was held in Sept. **2004**, Taipei, Taiwan.
- **International Committee Member**, IEEE International Symposium on Intelligent Control, conference was held in June. **2005**, Limassol, Cyprus.
- **Program Committee,** 2005 IEEE/ASME International Conference on Advanced Intelligent Mechatronics**,** July, **2005** Monterey, California.
- **Scientific Committee**, The 9th International Symposium on Structural Engineering for Young Experts (ISSEYE-9), August, **2006**.
- **International Scientific Committee** and **Organization Committee**, 3rd China-Japan-US Symposium on Structural Health Monitoring and Control, the conference was held in Dalian, China, in Oct. **2004**.

Professional Membership

- Member, ASME (American Society of Mechanical Engineering)

- Member, ASCE (American Society of Civil Engineering)
- Member, SPIE (The International Society for Optical Engineering)
- Member, ASEE (American Society for Engineering Education)

Proposal Reviewer

- Proposal reviewer and panelist for National Science Foundation
    - Dynamic Systems
    - Nano-manufacturing
    - Course, Curriculum, and Laboratory Improvement
- European Science Foundation
- National Science Foundation of China
- Proposal reviewer for OSGC (Ohio Space Grant Consortium)
- Other funding agencies

Editorialship

Associate Editor of ***Smart Materials and Structures***, a top journal in the field

Part 2: Research Funding

Total Awarded External Funding: $1, 700,650 (Dr. Song' Credit)

A. External Funding with Dr. Song as the Sole PI (Prior to Sept, 2007)

Total: $ 1,169,350

1) "A Career Plan for Research and Education in Smart Materials and Structures," a CAREER Award, **$395,000**, National Science Foundation, 2001-2007.

2) "Collaborative Research: Development of Multifunctional Nanocomposites with Engineered Carbon Nanopaper," **$100,000 (UH)** (Dr. Song is the sole PI at University of Houston), National Science Foundation, 2006-2009 **(Current)**.

3) "A fellowship for research in intelligent sensors for hear assist devices" at University of Houston", **$21,000**, University of Texas Medical Branch (UTMB), 2007-2008 **(Current)**.

4) "Develop an Interdisciplinary Course 'Introduction to Smart Space Structures (ISSS)' at University of Houston", **$15,000**, Texas Space Grant Consortium, 2006-2008 **(Current)**.

5) "Development of a Smart Vibration Platform Experiment," **$88,000**, National Science Foundation, 2004-2007. **(Current)**.

6) "Research in Innovative Use of Smart Materials in Propulsion System Components -- Control and Experimental Issues," **$50,000**, NASA Glenn, 2004-2006.

7) "Develop a Smart Flexible Beam Experiment Using Piezoceramic Sensors and Actuators," **$100,000**, National Science Foundation, 2005-2008. **(Current)**.

8) "Develop an Innovative Interactive Smart Material Exhibit for Children's Museum of Houston", **$75,000**, National Science Foundation, 2006-2008. **(Current)**.

9) "An Over-Height Collision Protection System Using Smart Materials," **$20,000**, Ohio Department of Transportation via University of Akron, 2004-2006.

10) "Research in Innovative Use of Smart Materials in Propulsion System Components -- Control and Experimental Issues (Renewal for 2003)," **$68,700**, NASA Glenn, 2003.

11) "Research in Innovative Use of Smart Materials in Propulsion System Components -- Control and Experimental Issues (Renewal for 2002)," **$84,000**, NASA Glenn, 2002

12) "Research in Innovative Use of Smart Materials in Propulsion System Components -- Control and Experimental Issues," **$68,700**, NASA Glenn, 2001.

13) "Adaptive Components in Engine Propulsion System Using Smart Materials," **$20,000**, Ohio Board of Regents, February, 2002-2003.

14) "Research Experiences for Teachers (RET) in Smart Materials and Structures," Supplement to CAREER award, **$10,000**, National Science Foundation, 2001-2002.

15) "Research Experiences for Undergraduate Students in Smart Materials and Structures," **$12,500**, Supplement to CAREER award, National Science Foundation, 2001-2002.

16) "Innovative Use of Smart Materials in Propulsion System Components," **$17,100**, Ohio Board of Regents, 2001-2002.

17) "Research in Smart Materials and Structures," **$20,000**, Ohio Board of Regents, February, 2001-2002.

18) "Precision Control of Piezoelectric Smart Structures with Temperature and Hysteresis Compensation," **$5,000**, a Research Infrastructure Seed Grant award, Ohio Space Grant Consortium (OSGC), 2000.

19) "Advanced Control of Aerospace Smart Structures using Shape Memory Alloy Actuators," **$10,000**, a Research Infrastructure Seed Grant award, Ohio Space Grant Consortium (OSGC), 1999.

20) "Development of a New Aerospace Related Course – Introduction to Smart Materials and Structures in The University of Akron," **$2,500**, a Higher Education Award, Ohio Space Grant Consortium (OSGC), 2000.

21) "Development of a New Graduate Course – Control of Smart Structures," **$2,500**, a Higher Education award, Ohio Space Grant Consortium (OSGC), 2002.

22) Travel grant to present a research paper entitled, "Structural Vibration Control Using Piezoceramic Patch Actuator," in International Conference on Advances and New Challenges in Earthquake Engineering Research (ICANCEER2002) in Harbin and Hong Kong, P.R. China, **$1850**, National Science Foundation, 2002.

23) Travel grant to deliver an invited talk entitled "Precision position regulation of a shape memory alloy wire actuator using sliding-mode based robust control" US-India Symposium on Elastic Vibrations and Smart Structures, India, **$2500**, National Science Foundation, 2001.

B. External Funding as with Multiple Investigators

Total Dr. Song's Portion: $ 203,000

24) "Collaborative Research: Hysteresis Compensation Using Linear Parameter Varying Control Methods," **$263,007**, PI: K. Grigoriadis; Co-PI: G. Song; Dr. Song's Portion: **$75,000**, National Science Foundation, 2006-2009 **(Current)**.

25) "Integrate Mobile Technology in Controls Laboratories," **$75,000**, PI: G. Song; Co-PIs: M. Franchek and H. Malki; Dr. Song's Portion: **$45,000**, Hewlett Packard, 2006-2008 **(Current)**.

26) "REU Site: Undergraduate Research Experience in Civil Infrastructure Engineering," **$76,947**, PI: Y.L. Mo; Co-PIs: K. Wang; Senior Person: G. Song, H. S. Rifai; Dr. Song's Portion: **$18,000**, NSF, 2007 **(Current)**.

27) "Meeting Industries' Critical Workforce Needs: Aerospace and Defense Cluster," **$260,000**, PI at UH: K. Grigoriadis; Co-PIs: D. Zimmerman, M. Franchek, P. Sharma, K. Hollingsworth, G. Song; Dr. Song's Portion: **$40,000**, Texas Workforce Commission, 2007-08 **(Current)**.

28) "Development of Effective Structural Composite Health Monitoring Systems by Smart Materials," PI: P. Qiao Co-PIs: **G. Song**, W. Lestari, W. Binienda; Ohio Aerospace Institute, **$73,000**, Dr. Song's Portion: **$25,000**, 2002-2004. Location of Project: The University of Akron.

C. Competitive Internal Funding as Principal Investigator (PI)

Total: $ 209,000

29) "Development of Innovative Undersea Blowout Preventer (BOP) Using Shape Memory Alloy Actuators," **$30,000**, a GEAR award, University of Houston, 2004-2005.

30) "Develop Internet Interactive Smart Structures Experiments," **$25,000**, a FIP-B award, University of Houston, 2004-2005.

31) "Increasing Concrete Structural Survivability Using Smart Materials," **$20,000**, a GEAR award, University of Houston, 2003-2004.

32) "Robust Control of a Smart Composite Beam using Shape Memory Alloy Wire Actuators," University of Akron Internal Faculty Research Grant, **$5500**, Spring, 2000.

33) "A Plan to Apply for Federal Curriculum Innovation Funding," Summer Teaching Innovation Grant, University of Akron, **$5000**, 2000.

34) "Research in Smart Composite Structures Using Piezoelectric Ceramics for Vibration Control and Health Monitoring," University of Akron for Fall'00 Internal Faculty Research Grant, **$5500**, Fall, 2000.

35) "To Initiate Smart Mini and Micro Legged-Robot Research In the College of Engineering," Firestone Research Initialization, University of Akron, **$5000,** 2000.

36) "Research Experiences for Undergraduate Students in Smart Materials and Structures," Summer Teaching Fellowship, University of Akron, **$5000**, 2001.

37) "Bring Innovative Demonstrations and Experiments to Classroom," Summer Teaching Grant, University of Akron, **$8000**, 1999.

38) "Initiate Research in Smart Composite Structures in College of Engineering," PI: G. Song, Co-PIs: P. Qiao and W.K. Binienda, **$100,000** (for a postdoc position for two years), funded by College of Engineering of University of Akron.

D. Grants – Award in Sept, 2007: Total Dr. Song's Credit: $328,300

39) "Collaborative Research: Phase II development of an innovative multi-functional smart vibration platform," Total: **$500,000**; UH Total: **$315,000**, PI: G. Song; Co-PIs: YL. Mo, H. Malki, L. Shieh, H. Hutchins; Dr. Song's Portion: **$180,000**, National Science Foundation, 2007-2010 **(Awarded in Sept, 2007)**.

40) "NEESR Payload: Damage Detection of Reinforced Concrete Columns Subjected to Combined Actions," **$100,000**, PI: YL. Mo; Co-PI: G. Song; Dr. Song's

Portion: **$50,000**, National Science Foundation, 2007-2008 **(Awarded in Sept, 2007)**.

41) "International Research and Education in Engineering (IREE) Supplementary Funding: Study of interlayer behavior of the nanocomposites using fiber optical sensor in collaboration with Harbin Institute of Technology (HIT), China", Total: **$27,900**, PI. G. Song, Dr. Song's credit: $27,900, National Science Foundation, 2007-2008 **(Awarded in Sept, 2007)**.

42) "International Research and Education in Engineering (IREE) Supplementary Funding: Hysteresis loop reshaping for MR dampers to achieve improved damping in collaboration with Harbin Institute of Technology (HIT), China", Total: **$31,800**, PI: K. Grigoriadis; Co-PI: G. Song; Dr. Song's Portion: **$15,900**, National Science Foundation, 2007-2008 **(Awarded in Sept, 2007)**.

43) "International Research and Education in Engineering (IREE) Supplementary Funding: Testing of Smart Aggregates in large scale civil structures at National Center for Research on Earthquake Engineering(NCREE), Taiwan", Total: **$34,000**, PI: YL Mo; Senior Person: G. Song; Dr. Song's Credit: **$17,000**, National Science Foundation, 2007-2008 **(Awarded in Sept, 2007)**.

44) "Dynamic Structural Testing of OptiSolar Panels," OptiSolar, Total **$52,150**, PI: G. Song, Co-PIs: D. Zimmerman, C. Dalton, M. Franchek, Dr. Song's Credit: **$25,000**. **(Awarded in Sept, 2007)**.

45) "Develop an interactive smart flexible beam experiment with active vibration control," Naval Postgraduate School, PI: G.Song, Total: **$12,500**, Dr. Song's Credit $**12,500**. **(Awarded in Sept, 2007)**.

Part 3: Keynote Speeches

1) Keynote Speech, "Smart Aggregates," 4th China-Japan-US Symposium on Structural Health Monitoring and Control, October, 2006, Hangzhou, China.

2) Keynote Speech, "Structural Control Using Smart Materials", The 8th International Symposium on Structural Engineering for Young Experts (ISSEYE-8), August 16, 2004, Xi'an, China.

3) Keynote Speech, "State-of-The-Art in Smart Materials and Their Applications," October 15, 2005, 18th Annual Mechanical Engineering Congress (of Mexico), Monterrey, Mexico.

4) Keynote Speech, "Smart Materials and Their Applications," 2nd Mechantronics Congress (of Mexico), August 27, 2005, San Luis Potosi, Mexico.

Part 4: Invited Talks and Short Courses Taught

1) Invited talk, "The State-of-the-Art of Smart Materials and Their Applications", University of Science and Technology Beijing, School of Mechanical Engineering, July 20, 2007, Beijing, China.
2) Invited talk, "Smart Materials and Structures and Their Civil Engineering Applications", Xiamen University, School of Civil and Architecture Engineering, July 18, 2007, Xiamen, China.
3) Invited talk, "Internet Controlled Remote Experiment & Smart Materials and Structures Remote Laboratory Extension at University of Houston", Hunan University, School of Civil Engineering, May 28, 2007, Changsha, China.
4) Invited talk, "Smart Materials and Structures and Their Applications in Civil Engineering", Hehai University, School of Civil Engineering, May 25, 2007, Nanjing, China.
5) Invited talk, "Smart Aggregates: a Distributed Intelligent Multi-purpose Sensor Network (DIMSN) for Civil Structures", April 19, 2007, National Center for Research in Earthquake Engineering, Taipei, Taiwan.
6) Invited talk, "Smart Aggregates," March 14, 2007, School of Civil Engineering, Harbin Institute of Technology, Harbin, China.
7) Invited talk, "Smart Aggregates," March 12, 2007, School of Civil Engineering, Shenyang Jianzhu University, Shenyang, China.
8) Invited Seminar, "An Innovative Ultradeepwater Subsea Blowout Preventer (SSBOP) Control System Using Shape Memory Alloy Actuators," Harold Vance Department of Petroleum Engineering, October 3, 2006, Texas A&M University.
9) Invited Seminar, "The State-of-the-Art of Smart Materials and Their Applications" Shenzhen Polytechnic, June 6, 2006, Shenzhen, China.
10) Invited talk, "The State-of-the-Art of Smart Materials and Their Applications," American Society of Materials – Houston Chapter, April 11, 2006, Houston.
11) Invited Seminar, "The State-of-the-Art of Smart Materials and Structures and Their Applications," March 24, 2006, College of Engineering, University of South Alabama.
12) Invited University Lecture: "Smart Materials and Structures and Their Applications," January 4, 2006, Shenyang Jianzhu University.

13) Invited lectures, a. “Smart Materials and Their Applications,” b. “Active Vibration Control Using Piezoelectric Materials – Classical Control Methods,” c. “Basics about System Dynamics and Controls,” December 28, 29, and 30, 2005, Huazhong University of Science and Technology.

14) Invited Seminar, “Structural Control and Health Monitoring Using Smart Materials,” September 28, 2005, Department of Civil Engineering, Louisiana State University.

15) Invited Short Course, “Smart Materials and Structures with Applications in Civil Engineering,” July 12-14, 2005, School of Civil Engineering, Lanzhou University of Technology.

16) Invited University Lecture, “The-State-of-the-Art in Smart Structures and Their Civil Engineering Applications: Structural Control and Health Monitoring,” July 15, 2005, School of Civil Engineering, Lanzhou University of Technology.

17) Invited Seminar, “Structural Control and Health Monitoring Using Smart Materials,” March 20, 2005, Huazhong University of Science and Technology.

18) Invited Talk, “Structural Control Using Smart Materials,” Department of Mechanical Engineering, September 2, 2004, National Center for Research in Earthquake Engineering, Taipei, Taiwan.

19) Invited Lectures: a. “Structural Health Monitoring Using Piezoceramic Materials,” b. “Application of Shape Memory Alloy in Structural Control,” c. “Structural Vibration Control Using Piezoceramic Materials,” August 25 and 26, 2004, School of Civil Engineering, Harbin Institute of Technology, China.

20) Invited Talk, “Smart Materials and Active Structural Vibration Control Using Piezoceamic Materials,” May 15, 2004, Department of Mechanical Engineering, Dalian University of Technology, China.

21) Invited Short Course: “Introduction to Smart Structures with Civil Engineering Applications,” May 12-14, Dalian University of Technology, China.

22) Invited Seminar, “Active Structural Vibration Control Using Piezoceramic Materials,” April 15, 2004, Department of Civil Engineering, Rice University.

23) Invited talk entitled, “Active Vibration Control Using Piezoceramic Materials,” Nov. 14, 2003, Department of Civil Engineering, University of Akron.

24) Invited short Course entitle, “Intelligent Structures,” a 2-day short course taught to faculty members at Department of Mechanical Engineering, Oct. 30 and Oct 31, 2003, Monterrey Technological University, Mexico. Sponsored by Monterrey Technological University and CONACyT.

25) Invited Mini Symposium: “Part 1: Introduction to smart materials,” “Part 2: Applications of smart materials,” A Mini Symposium on Smart Materials and Structures organized by ASME section at Monterrey Technological University, Oct. 29, 2003, Monterrey Technological University, Mexico. Sponsored by Monterrey Technological University and CONACyT.

26) Invited talk entitled, “Introduction to smart materials,” Oct. 28, 2003, Department of Mechanical Engineering, Monterrey Technological University, Mexico.

27) Invited talk entitled, “Control of Shape Memory Alloy Smart Materials and Structures,” Sept. 19, 2003, Department of Mechanical Engineering, Rice University.

28) Invited talk entitled, “Active Vibration Control Using Smart Materials,” Sept. 17, 2003, Department of Civil Engineering, University of Houston.

29) Invited talk entitled, “Active Vibration Control Using Smart Materials,” August 22, 2003, School of Civil Engineering and Hydrology, Dalian University of Technology, China.

30) Invited short course entitled “Smart Materials and Structures - Issues in Controls and Civil Engineering Applications,” School of Civil Engineering, Dalian University of Technology, Dalian, China, December, 2002.

31) Invited talk entitled, “Control of Shape Memory Alloy Smart Materials and Structures,” US Naval Postgraduate School, Monterey, California, December, 2002.

32) Invited lecture entitled, “Smart Materials and Structures and Their Applications”, Weekly Departmental Seminar of Mechanical Engineering, University of Akron, November, 2002.

33) Invited graduate lecture entitled, “Shape Memory Alloys and Their Applications,” University of Cincinnati, November, 2002.

34) Invited lecture entitled, “Smart Materials and Their Applications,” Harbin Institute of Technology, Harbin, China, August, 2002.

35) Invited talk entitled, “Introduction to Smart Materials and Structures and Their Applications,” Shenyang Architectural and Civil Engineering Institute, Shenyang, China, June, 2002.

36) Invited talk entitled, “Introduction to Smart Materials and Structures and Their Applications,” Dalian University of Technology, Dalian, China, June, 2002.

37) Invited talk entitled “Active Vibration Control of An 11-Foot-Long Composite I-Beam Using Piezoelectric Materials and Future Smart Structures Research, University of Houston, May, 2002.

38) Invited talk entitled “Shape, Vibration, and Position Control using Smart Materials,” Michigan Technological University, May, 2002.

39) Invited talk entitled “Shape, Vibration, and Position Control using Smart Materials,” Oregon State University, April, 2002.

40) Invited talk entitled “Shape, Vibration, and Position Control using Smart Materials,” University of Missouri at Rolla, March, 2002.

41) Invited seminar lecture entitled “Research in Smart Materials and Structures,” University of Central Florida, March, 2002.

42) Invited seminar lecture entitled “Research in Smart Materials and Structures,” University of Wisconsin-Milwaukee, February, 2002.

43) Invited graduate lecture entitled, “Shape Memory Alloys: Basic, Actuator, and Their Applications,” University of Cincinnati, November, 2001.

44) “Use Smart Materials and Structures and Their Applications,” American Society of Metallurgy (ASM) – Canton Chapter, February, 2001.

45) Invited talk entitled “Precision position regulation of a shape memory alloy wire actuator using sliding-mode based robust control” US-India Symposium on Elastic Vibrations and Smart Structures, India, National Science Foundation, 2001.

46) Invited lecture entitled, “Smart Materials and Their Applications,” Aircraft Braking System, Inc., Akron, Ohio, November, 2000.

47) Invited seminar entitled, “Smart Materials and Their Applications,” Beijing University of Aeronautics and Astronautics, Beijing, China, September, 2000.

48) An invited two-day short course entitled “A Workshop on Smart Materials and Structures,” Huazhong University of Science and Technology, Wuhan, China, September, 2000.

49) An invited paper and presentation entitled, “Vibration Reduction for Flexible Spacecraft Attitude Control using PWPF Modulator and Smart Structures," at IEEE Aerospace Conference (Snowmass, Co), 1999.

50) An invited four-day short course on Smart Materials and Structures, Northwestern Polytechnical University, Xian, China, November, 1998.

51) An invited talk entitled, “Active Vibration Control of Flexible Structures Using Smart Materials,” The University of Akron, April, 1998.

52) An invited talk entitled, “Active Vibration Control of Flexible Structures Using Smart Materials,” Catholic University of America, April, 1998.

53) An invited talk entitled, “Vibration Suppression of Flexible Structures Using Piezoceramic Materials,” Naval Academy, April, 1998.

54) An invited talk entitled, “Active Vibration Control of Flexible Structures Using Smart Materials,” University of Michigan – Dearborn, March, 1998.

55) An invited talk entitled, “Active Vibration Control of Flexible Structures Using Smart Materials,” San Diego State University, March, 1998.

56) An invited seminar entitled “Application of Piezoceramics to Vibration Suppression of a Spacecraft Flexible Appendage,” Bradley University, April, 1997.

57) An invited seminar entitled “Application Vibration Using Piezoceramic Materials,” University of Missouri - Columbia, April, 1997.

58) An invited seminar entitled “Robust-adaptive Control of Active Magnetic Bearings,” University of Idaho - Pocatello, May, 1996.

Part 5: List of Publications

A. Articles in Peer Reviewed Journals (Total: 65 + 3 Accepted Papers)

1) V. Sethi, and G. Song, "Multimodal Vibration Control of a Flexible Structure using Piezoceramic Sensor and Actuator," to appear in Journal of Intelligent Material Systems and Structures, 2007. (SCI, EI).

2) G. Song and H. Gu, "Active vibration suppression of a smart flexible beam using a sliding mode based controller," to appear in Journal of Vibration and Control, 2007. (SCI, EI).

3) V. Sethi, G. Song, and M. Franchek, "Loopshaping Control of a Model Story Building Using Smart Materials," to appear in Journal of Intelligent Material Systems and Structures, 2007. (SCI, EI).

4) G. Song, N. Ma, H.-J. Lee, and S. Arnold, "Design and control of a proof-of-concept variable area exhaust nozzle using shape-memory alloy actuators," Smart Materials and Structures, Vol.16, pp.1342 – 1347, August, 2007. (SCI, EI)

5) H. Gu and G. Song, "Active vibration suppression of a flexible beam with piezoceramic patches using robust model reference control," Smart Materials and Structures, Vol.16, pp. 1453 - 1459, August, 2007. (SCI, EI)

6) M. Liu, G. Song, and H. Li, "Non-model based semi-active vibration suppression of stay cables using Magneto-Rheological (MR) fluid damper," Smart Materials and Structures, Vol.16, pp. 1447-1452, August, 2007. (SCI, EI)

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