

**Chao Sun**  
Assistant Professor  
Department of Civil and Environmental Engineering  
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## **Education**

Ph.D. Civil Engineering, Rice University	2013
M.S. Civil Engineering, Tongji University	2009
B.S. Civil Engineering, Shanghai Jiaotong University	2006

## **Research Interests**

Dynamics, Sensing and Adaptive Control;  
Theoretical and Numerical Modeling of Nonlinear Vibrations;  
Vibration Based System Identification and Damage Detection;  
Multi-hazards Mitigation for Coastal and Offshore Structures;  
Fluid Structure Interaction between Ocean Waves and Structures;  
Energy Harvesting from Excessive Vibrations and Ocean Waves;  
Other Dynamics related areas.

## **Academic Experience**

### **Assistant Professor**

Dept. of Civil & Environmental Engineering, Louisiana State University, 08/2015-present

### **Postdoctoral Researcher (part time)**

Dept. of Civil & Environmental Engineering, Rice University, 10/2013-07/2015

## **Non-academic Experience**

### **Senior Structural Engineer**

INTECSEA Inc. WorleyParsons Group 01/2014-08/2015

## **Teaching Experience**

### **Louisiana State University, Baton Rouge, LA**

Instructor of Structural Analysis I CE 3415 (fall 2015)

Instructor of Principles of Reinforced Concrete CE4410 (spring 2016, 2017)

Instructor of Strength of Materials CE3400 (Fall 2016)

Instructor of Structural Design for Dynamic Loads CE7430 (Fall 2016)

### **Rice University, Houston, TX**

Teaching assistant for laboratory course *Strength of Materials* (2010/2011/2012/2013);

Teaching assistant for laboratory course *Reinforced Concrete Design* (2010/2011/2012);

Instructor of tutorial session for *Mechanics of Solids* (2012/2013), *Computational Methods in Structural Mechanics* (2010/2011/2012) and *Structural Dynamics and Control* (2011/2012).

## **Honors & Awards**

<b>Best Award</b> in the 1 <sup>st</sup> Rice University Graduate Elevator Pitch Competition	2013
<i>Xinjie Scholarship</i> at Tongji University	2007/2008
Graduate with Honor, Shanghai Jiaotong University	2006
<i>Exceptional Prize</i> in <i>Structural Design Contest (First Place)</i>	2005
<i>National Scholarship</i> in Shanghai Jiao Tong University	2005
<i>Excellent Student</i> of Shanghai Jiao Tong University ( <b>1<sup>st</sup> in the Department</b> )	2003
Scholarship for <b>Excellent Students</b> in Shanghai Jiao Tong University	2003/2004/2005
1 <sup>st</sup> Prize in the National High School Mathematics and Physics Competition	2001/2002

## **Professional Activities**

### **Active Reviewer:**

Structural Control and Health Monitoring Journal,  
 Journal of Sound and Vibration,  
 Mechanical System and Signal Processing,  
 Applied Energy,  
 Experimental Mechanics,  
 Engineering Structures,  
 Smart Structures and Systems Journal,  
 Journal of Earthquake Engineering,  
 Earthquake Engineering and Structural Dynamics,  
 Nonlinear Dynamics,  
 Journal of Vibration and Control.

## **Certifications & Professional Organizations**

E.I.T, Texas, August 2014  
 Member of ASCE.  
 Member of ASME.  
 Member of EMI Structural Health Monitoring & Control Committee.  
 Member of SEI Structural Sensing & Control Committee.  
 Member of SEI Multi-hazard & Mitigation Committee.  
 Member of SEI System Identification Committee.  
 Editorial Board of Journal of Offshore Engineering and Technology

## **Publications and Presentations**

- [1] **C. Sun**, V. Jahangiri. Bi-axial Vibration Mitigation of Offshore Wind Turbines Considering Environmental and Operational Variations, *Journal of Sound and Vibration (under review)*.
- [2] **C. Sun**, Zhiming Zhang. Multi-site Structural Damage Identification Using a Machine Learning Method of Multi-label Classification. *Structural Health Monitoring (under review)*.
- [3] Zhiming Zhang, **C. Sun**. Bridge Scour Monitoring: A Data-driven Method Using Structural Modal Properties. *Journal of Aerospace Engineering (under review)*.
- [4] Zhiming Zhang, **C. Sun**, Mingxuan Sun, Raj Bridgelall. Application of a Machine Learning Method to Evaluate Road Roughness from Connected Vehicles. *Journal of Transportation Engineering (under review)*.
- [5] Zhiming Zhang, **C. Sun**, Mingxuan Sun, Raj Bridgelall. Road profile reconstruction and evaluation using connected vehicle responses and wavelet analysis. *Journal of Transportation Engineering (under review)*.

- [6] **C. Sun**, V. Jahangiri. Bi-directional Vibration Control of Offshore Wind Turbines Using a 3D Pendulum Tuned Mass Damper. *Mechanical System and Signal Processing*, 2018, 105: 338-360.
- [7] **C. Sun**, S. Nagarajaiah. Study on a Novel Adaptive Passive Stiffness Device and Its Application for Seismic Mitigation. *Earthquake Engineering and Structural Dynamics (under review)*.
- [8] **C. Sun**. Mitigation of Offshore Wind Turbines under Wind-wave Load: Considering Soil Structure Interaction and Damage. *Structural Control and Health Monitoring* (DOI: 10.1002/stc.2117).
- [9] **C. Sun**. Semi-active Control of Offshore Wind Turbines under Multi-Hazards. *Mechanical System and Signal Processing*, 2018, 99: 285-305.
- [10] E. Sonmez, **C. Sun**, S. Nagarajaiah, B. Basu. A study on Semi-active Tuned Liquid Column Dampers (sTLCDs) for Structural Response Reduction under Random Excitations. *Journal of Sound and Vibration*, 2016(362) 1-15.
- [11] R. P. Eason, **C. Sun**, A. J. Dick, S. Nagarajaiah. Steady-state response attenuation of a linear oscillator-nonlinear absorber system by using an adjustable-length pendulum in series: Experimental and numerical results. *Journal of Sound and Vibration*, 2015, 344(26): 332-344.
- [12] **C. Sun**, S. Nagarajaiah, A. J. Dick. Experimental Investigation of Vibration Attenuation Using Nonlinear Tuned Mass Damper and Pendulum Tuned Mass Damper in Parallel. *Nonlinear Dynamics*, 2014, 78(4): 2699-2715.
- [13] **C. Sun**, S. Nagarajaiah. Study on Semi-active Tuned Mass Damper with Variable Damping and Stiffness under Seismic Excitations. *Structural Control and Health Monitoring*: 2014, 21(6): 890-906.
- [14] **C. Sun**, S. Nagarajaiah, A. J. Dick. Family of Smart Tuned Mass Dampers with Variable Frequency under Harmonic Excitations and Ground Motions: Closed-Form Evaluation. *Smart Structures and Systems*, 2014, 13(2): 319-341.
- [15] **C. Sun**, R. P. Eason, S. Nagarajaiah, A. J. Dick. Hardening Duffing Oscillator Attenuation Using a Nonlinear TMD, a Semi-active TMD and Multiple TMD. *Journal of Sound and Vibration*, 2013, 332(4): 674-686.
- [16] R. P. Eason, **C. Sun**, A. J. Dick., S. Nagarajaiah. Attenuation of a linear oscillator using nonlinear and semi-active tuned mass dampers in series. *Journal of Sound and Vibration*, 2013, 332(1): 154-166.
- [17] **C. Sun**, S. Nagarajaiah. STFT Based Real-time Control with Variable Stiffness and Damping of Smart Tuned Mass Damper for Seismic Protection. [C]. 15th World Conference on Earthquake Engineering, Lisbon, Portugal.
- [18] R. P. Eason, **C. Sun**, A. J. Dick., S. Nagarajaiah. Using a Semi-Active Tuned Mass Damper to Limit the Motion of a Nonlinear Absorber and Attenuate Structural Vibrations. 2012 IMECE, ASME 2012 Congress.
- [19] **C. Sun**, X. Wu, Y. Zhou, J. Li. Numerical Simulation of Concrete Stochastic Damage Constitutive Law[J]. *Journal of Huazhong University of Science and Technology (Urban Science Edition)*, 2008, 25(4):276-279.
- [20] Liu Hankun, **Sun Chao**, Li Jie. X-ray CT based Three Dimensional Numerical Simulation of Concrete in Mesoscopic Level. *Journal of Architecture and Civil Engineering*, 2010, 27(1):54-59.