

# Graduate Research Assistantship – Ph.D. Level

CLEMSON UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING

There is a Ph.D. graduate research opportunity for prospective students who are interested in the following research project and are seeking doctoral degree in civil/structural engineering. The start date of this position is Spring 2010 (January).

## Predicting Building Envelope Failures of Residential Structures due to Atlantic Basin Hurricane Wind Hazard

**INVESTIGATORS:** Dr. WeiChiang Pang & Dr. Scott Schiff

### PROJECT ABSTRACT

This research project seeks to develop a methodology to predict the envelope failure probabilities of residential structures due to hurricane-borne debris impact. A typical South Carolina coastal housing community will be selected for hurricane debris impact risk analysis. The planned tasks for this research project are listed below:

- (1) Characterize the hurricane wind hazard for the coastal South Carolina regions using suites of synthetic hurricanes. These synthetic hurricanes will be generated using the current state-of-the-art hurricane simulation procedure.
- (2) Develop a module-based framework for predicting the building envelope failures of residential buildings in South Carolina due to debris impact and to perform sensitivity studies on debris generation parameters on the damage of building envelope.
- (3) Make recommendations and outline a road-map for future advances towards a performance-based building envelope design methodology using the combined hurricane hazard and building performance information obtained from tasks (1) and (2).

### CLEMSON CIVIL ENGINEERING PROGRAM IN TOP-20

According to *U.S. News & World Report America's Best Colleges 2010*, Clemson's civil engineering department undergraduate program is ranked 20th among engineering schools whose highest degree is a doctorate. This ranking places the Civil Engineering Department 13th in the nation among public universities. The rankings are considered a benchmark among college programs nationwide and are based on the results of a national survey of engineering deans and senior faculty. *U.S. News & World Report* recently ranked Clemson University as 22nd among public institutions within the nation's 162 public doctoral-granting universities.

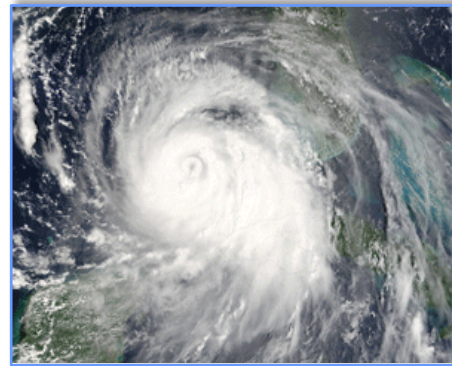
### PROSPECTIVE APPLICANTS

Prospective candidates should be highly motivated and preferably have background in **probability and reliability**. Since the research involves extensive numerical modeling and simulations, background in **numerical modeling and computer programming** (such as Matlab, C/C++ or visual Basic) are desired.

Interested candidates may send an informal inquiry with a copy of their curriculum vitae, most recent transcripts and a brief statement of research interest to Dr. Pang.

In order to receive full consideration, applicants must submit applications through the Clemson University Graduate School website:

<http://www.grad.clemson.edu/Admission.php>

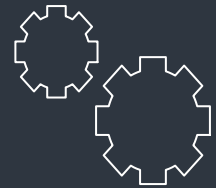
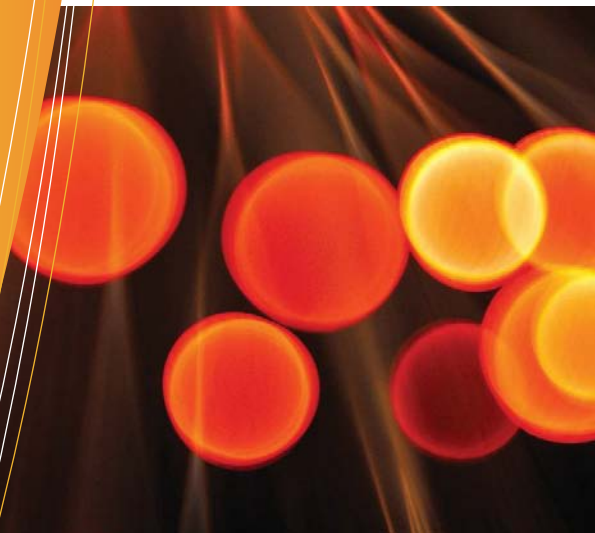


### WIND AND STRUCTURAL ENGINEERING RESEARCH FACILITY

Clemson University's Wind and Structural Engineering Research (WiSER) Facility is a premier laboratory for the study of wind effects on structures. Testing to assess the structural performance of buildings and bridges can also be conducted using both load actuators and pressure to simulate design loadings.

More information:

<http://www.clemson.edu/ce/pdf/WiSER.pdf>



### CONTACT INFORMATION

Dr. WeiChiang Pang  
Assistant Professor  
Civil Engineering Department  
Clemson University  
Office: 312 Lowry Hall  
Clemson SC, 29634-0911  
(864) 656-0114  
wpang@clemson.edu  
<http://people.clemson.edu/~wpang/>



### GRADUATE ADMISSION

Clemson University  
Office of Graduate Admissions  
E-209 Martin Hall  
Clemson University  
Clemson SC 29634

Admission is based on the assessment of the entire application package includes academic performance, standardized scores (GRE and TOEFL), reference letters, and statement of purpose. Relevant work experience should be highlighted in your application.

