

# SRIKANTH S. C. MADABHUSHI



## CONTACT

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## EMPLOYMENT OVERVIEW

*2020-Present*    University of Colorado, Boulder, United States of America

*Assistant  
Professor*

Tenure Track Assistant Professor of Civil, Environmental & Architectural Engineering · *Department of Civil, Environmental & Architectural Engineering*

*2018-2020*        University of California, Davis, United States of America

*Post Doctoral  
Research Associate*

SRA · *Electrical Power and Research Institute* · Civil and Environmental Engineering  
Description: Centrifuge modeling of coal ash flows, as witnessed in Kingston 2008 or Aberfan 1966. Novel mechanical design for container and sensor development for tests yielded unique results that allow for better risk quantification and management protocols in the future through increased fundamental understanding of the deformation mechanics Supervisors: Prof. Alejandro MARTINEZ · Dr Daniel WILSON · Prof. Bruce KUTTER · Prof. Ross BOULANGER

## EDUCATION

*2014-2018*        University of Cambridge, United Kingdom

*Doctorate of  
Philosophy*

PhD · *EPSRC Doctoral Training Award* · Department of Engineering  
Thesis: *Multi-Hazard Modelling of Dual Row Retaining Walls*  
Description: Combined centrifuge and numerical modelling of a proposed coastal defence under seismic and subsequent Tsunami loading. Led to several fundamental findings about dynamic soil pressures and practical insights about optimal material use to facilitate environmental and economic savings.  
Supervisor: Dr Stuart K. HAIGH

*2010-2014*        University of Cambridge, United Kingdom

*Masters of  
Engineering*

MEng MA (Cantab) · *Distinction with Honours* · Department of Engineering  
Specialisation: Civil, Structural and Environmental Engineering  
Masters Thesis: *Investigating the Deformation Mechanism under Shallow Foundations*  
Description: Combined small scale tests and analytical models to make novel predictions of the transition of deformation mechanisms beneath shallow foundations. This allows improved settlement predictions for design with a more rigorous basis than had been conventionally used in Civil Engineering practice.  
Supervisor: Dr Stuart K. HAIGH

## SELECT PRIZES AND AWARDS

- 2020 · Johns Hopkins Healthcare Design Competition, Advanced Health Finalist · Johns Hopkins University
- 2019 · Natural Hazards Engineering Research Infrastructure (NHERI) Summer Institute Travel Award · University of Texas, San Antonio
- 2018 · International conference of press-in engineering best presentation award · International Press-in Association
- 2017 · IGS-Shamsher Prakash Biennial Award for best paper on Soil Dynamics in Indian Geotechnical Journal · Indian Geotechnical Society
- 2017 · Philip Turner Prize - Outstanding work in Geotechnical Centrifuge Testing conducted at the Schofield Centre · Schofield Centre
- 2014-2017 · Doctoral Training Award and additional Graduate Research Scholarship awarded based on undergraduate examination performance · EPSRC & Trinity College Cambridge
- 2015 · National Best Dissertation Award for Masters Thesis · British Geotechnical Association

2014 · Performance prize for achieving a rank of 1<sup>st</sup> in Civil Engineering and 4<sup>th</sup> in the year overall · Trinity College Cambridge

2014 · Roscoe Prize for best performance in Geotechnical Engineering Modules · CUED

2013 · Society of Construction Law Prize for module performance · CUED

#### PROFESSIONAL ACTIVITIES AT UNIVERSITY OF COLORADO, BOULDER

##### Teaching

CVEN 3718 · Geotechnical Engineering II

Teaching of Geotechnical Engineering II Fall 2020 (Juniors and Seniors). Updated course lecture and laboratory materials to allow synchronous and asynchronous online delivery. Adapted course structure to reflect previous years teaching assessment feedback, increasing the emphasis on student communication skills, ethical responsibilities within Civil Engineering with regards to sustainability and resilience, and modern sensing technologies

CVEN 4728 / 5728 · Foundation Engineering

Teaching Foundation Engineering Spring 2021 (Seniors and Graduate Students). Updating course materials to contextualize industry standards with current research opportunities, in particular the use of the unique experimental testing facilities at University of Colorado, Boulder

##### Service

Graduate Committee

Serving on the Graduate Admissions for Civil, Environmental and Architectural Engineering. Responsible for coordinating admission decisions for the Geotechnical Engineering & Geomechanics graduate program. Participated in the Graduate School Diversity Recruitment Initiative

#### PUBLICATIONS

##### Journals

[1] S. S. C. Madabhushi, A. Dobrison, R. Beber, S. K. Haigh, and S. P. G. Madabhushi. LEAP-UCD-2017 centrifuge tests at Cambridge. In *Model Tests and Numerical Simulations of Liquefaction and Lateral Spreading*, pages 239–253. Springer, 2020

(Ahead of print)

[2] S. S. C. Madabhushi and S. K. Haigh. Dual Row Retaining Walls in Dry Sand: The Influence of Wall Stiffness on the Seismic Response. *Canadian Geotechnical Journal*, 2020

[3] S. S. C. Madabhushi and S. K. Haigh. Centrifuge Testing of Dual Row Walls in Dry Sand: the influence of Earthquake sequence and multiple flights. *Soil Dynamics and Earthquake Engineering*, 125, 2019

(Invited Paper)

[4] S. S. C. Madabhushi and S. K. Haigh. Using Tactile Pressure Sensors to Measure Dynamic Earth Pressures around Dual Row Walls. *International Journal of Physical Modelling in Geotechnics*, 19(2):58–71, 2018

[5] S. S. C. Madabhushi, S. K. Haigh, and S. P. G. Madabhushi. LEAP-GWU-2015: Centrifuge and numerical modelling of slope liquefaction at the University of Cambridge. *Soil Dynamics and Earthquake Engineering*, 113(November 2015):671–681, 2018

(Shamsher Prakash Biennial Award)

[6] S. S. C. Madabhushi and S. P. G. Madabhushi. Finite Element Analysis of Floatation of Rectangular Tunnels Following Earthquake Induced Liquefaction. *Indian Geotechnical Journal*, 45(3):233–242, 2015

[7] S. S. C. Madabhushi and S. K. Haigh. Investigating the changing deformation mechanism beneath shallow foundations. *Geotechnique*, 65(8):684–693, 2015

[8] S. S. C. Madabhushi, M. Z. E. B. Elshafie, and S. K. Haigh. Accuracy of Distributed Optical Fiber Temperature Sensing for Use in Leak Detection of Subsea Pipelines. *ASCE: Journal of Pipeline Systems Engineering and Practice*, 6(2):04014014, 2015

[9] B. L. Kutter, T. J. Carey, T. Hashimoto, M. Zeghal, T. Abdoun, P. Kokkali, S. P. G. Madabhushi, S. K. Haigh, F. Burali d'Arezzo, S. S. C. Madabhushi, W. Y. Hung, C. J. Lee, H. C. Cheng, S. Iai, T. Tobita, T. Ashino, J. Ren, Y. G. Zhou, Y. M. Chen, Z. B. Sun, and M. T. Manzari. LEAP-GWU-2015 experiment specifications, results, and comparisons. *Soil Dynamics and Earthquake Engineering*, (113):616–628, 2015

##### International Conferences

[1] S. S. C. Madabhushi, K. O'Hara, A. V. Martinez, D. W. Wilson, R. W. Boulanger, B. L. Kutter, and K. Ladwig. Centrifuge Modeling of Fly Ash Deposit Dewatering. In *Geo-Congress 2020*, Minneapolis, 2020

- [2] S. S. C. Madabhushi and S. K. Haigh. Measuring the behaviour of dual row retaining walls in dry sands using centrifuge tests. In *International Conference of Physical Modelling in Geotechnics*, pages 639–644, London, UK, 2018
- [3] S. S. C. Madabhushi and S. K. Haigh. A Comparison between the Dynamic Behaviour of Flexible Dual Row Walls Founded in Dry and Liquefiable Sands. In *1st International Conference on Press-in Engineering*, pages 265–272, 2018
- [4] R. Beber, S. S. C. Madabhushi, A. Dobrisan, S. K. Haigh, and S. P. G. Madabhushi. LEAP GWU 2017: Investigating different methods for verifying the relative density of a centrifuge model. In *International Conference of Physical Modelling in Geotechnics*, pages 125–131, 2018
- [5] S. S. C. Madabhushi and S. K. Haigh. Combining Experimental and Numerical Methods to investigate the seismic performance of dual row retaining walls in Dry Sand. In *16th European Conference on Earthquake Engineering*, 2018
- [6] S. S. C. Madabhushi and S. K. Haigh. Using tactile pressure sensors to measure dynamic earth pressures in centrifuge models of dual row retaining walls. In L. Thorel, M. Bretschneide, M. Blanc, and S. Escoffier, editors, *Proceedings of the 3rd European Conference on Physical Modelling in Geotechnics (EUROFUGE)*, pages 213–218, Nantes, France, 2016
- [7] S. S. C. Madabhushi and S. K. Haigh. The Influence of Embedment on the Seismic Performance of Dual Row Retaining Walls. In *6th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics*, New Delhi, India, 2016. Missouri University of Science and Technology
- [8] B.L. Kutter, T.J. Carey, B.L. Zheng, A. Gavras, N. Stone, M. Zeghal, T. Abdoun, E. Korre, M. Manzari, S. K. Haigh, S. S. C. Madabhushi, S. P. G. Madabhushi, M. Okamura, A.N.N. Sjaifuddin, S. Escoffier, D-S. Kim, S.-N. Kim, J.-G. Ha, T. Tobita, K. L. Hikaru, H. Yatsugi, K. Ueda, R.R. Vargas, W.-Y. Hung, T.-W. Liao, Y.-G. Zhou, and K. Liu. Twenty-Four Centrifuge Tests to Quantify Sensitivity of Lateral Spreading to Dr and PGA. In *5th Geotechnical Earthquake Engineering and Soil Dynamics Conference*, volume 2018-June, 2018
- [9] S. S. C. Madabhushi and S. K. Haigh. Visualising the Deformation Mechanisms beneath Shallow Foundations. In *Proceedings of Indian Geotechnical Conference*, 2014

## RELATED PROFESSIONAL ACTIVITIES

### 2018-Present Journal Peer Reviews

*Journal Reviews*

Geotechnique, Journal of Engineering Mechanics, Geotechnical Engineering, Soil Dynamics and Earthquake Engineering, Bulletin of Earthquake Engineering, International Journal of Physical Modelling in Geotechnics, Geomechanics and Engineering, Geotechnical Testing Journal

### 2019-2020 NHERI ECO Committee, UNIVERSITY OF CALIFORNIA, DAVIS

*Outreach*

Site representative for Center for Geotechnical Modeling at UC Davis & presented at NHERI summer institute 2019, Site coordinator for NHERI summer program, Centrifuge testing representative for visiting local schools

### 2015-2018 Cambridge Team Member, UNIVERSITY OF CAMBRIDGE

*LEAP Project  
(USA, ASIA  
&EUROPE)*

Member of the experimental team as part of the Cambridge contribution to the Liquefaction Experiment and Analysis Project (LEAP). Organised and lead the centrifuge testing and data analysis. Presented and discussed results at the international workshop 2017 in Davis CA, USA.

### 2015-2016 Cambridge Team Member, GEOTECHNICAL GROUP

*Giken Ltd (Japan)*

Participated in technical discussion and presentations between Cambridge Geotechnical research group and the piling company Giken. Presented at the International Press-In Association conference 2015 & 2016 in Kochi, Japan

### 2016 Research Project Assistant, SCHOFIELD CENTRE

*SBM (France) &  
Cathie Associates  
(Belgium)*

Assisted the experimental setup, execution and analysis of centrifuge tests on offshore mooring systems for industrial practice