Curriculum Vitae

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[Academic Background]

Ph.D. 2014	Structural Engineering, Oregon State University, Corvallis, OR Advisor: Michael H. Scott Dissertation: "Fluid-structure interaction analysis with the particle finite element method"
M.S. 2008	Structural Engineering, Southeast University, Nanjing, China
B.S. 2005	Civil Engineering, Yangzhou University, Yangzhou, China

[Work Experience]

Postdoctoral Scholar	2014 – Present	Oregon State University, Corvallis, OR
Instructor	2016 Fall	Oregon State University, Corvallis, OR
Graduate Research Assistant	2009-2014	Oregon State University, Corvallis, OR

[Refereed Journal Publications]

Zhu, M. and McKenna, F. and Scott, M. H. "*OpenSeesPy: Python Library for the OpenSees Finite Element Framework.*" SoftwareX, 7:6-11, June 2018.

Zhu, M. and Elkhetali, I. and Scott, M. H. "*Validation of OpenSees for Tsunami Loading on Bridge Superstructures.*" Journal of Bridge Engineering, In press, Accepted October 2017.

Zhu, M. and Scott, M. H. "*Direct differentiation of the quasi-incompressible fluid formulation of fluid-structure interaction using the PFEM.*" Computational Particle Mechanics, 4(3):307-319, July 2017.

Zhu, M. and Scott, M. H. "*Unified fractional step method for Lagrangian analysis of quasi-incompressible fluid and nonlinear structure interaction using the PFEM.*" International Journal for Numerical Methods in Engineering, 109(9):1219-1236, March 2017.

Zhu, M. and Scott, M. H. "*Direct Differentiation of the Particle Finite Element Method for Fluid-Structure Interaction.*" Journal of Structural Engineering, 142(3):04015159, March 2016.

Zhu, M. and Scott, M. H. "*Improved fractional step method for simulating fluid-structure interaction using the PFEM.*" International Journal for Numerical Methods in Engineering, 99(12):925-944, September 2014.

Zhu, M. and Scott, M. H. "*Modeling fluid-structure interaction by the particle finite element method in opensees.*" Computers & Structures, 132:12–21, 2014.

[Conference Proceedings]

Scott, M.H. and **Zhu, M.** *Sensitivity analysis of fluid-structure interaction using a unified fractional step solver.* 12th World Conference on Computational Mechanics (WCCM XII) & 6th Asia-Pacific Congress on Computational Mechanics (APCOM VI), Seoul, South Korea, July 2016.

Scott, M.H. and **Zhu, M.** *Particle Finite Element Response Sensitivity Analysis of Fluid-Structure Interaction by the Direct Differentiation Method.* 4th International Conference on Particle-Based Methods (PARTICLES 2015). Barcelona, Spain, September 2015.

Zhu, M. and Scott, M.H. *Sensitivity Analysis of Fluid-Structure Interaction using the PFEM.* 12th International Conference of Applications of Statistics and Probability in Civil Engineering (ICASP12), Vancouver, BC, July 2015.

Scott, M.H. and **Zhu, M.** *Direct Differentiation Analysis of Fluid-Structure Interaction Using the Particle Finite Element Method.* US National Conference on Computational Mechanics. Raleigh, NC, July 2013.

Zhu, M. and Scott, M.H. *Reliability Analysis of Fluid-Structure Interaction using the Particle Finite Element Method.* International Conference on Structural Safety and Reliability, New York, NY, June 2013. (Abstract Only)

Zhu, M. and Scott, M.H. *Response Sensitivity Analysis of the Particle Finite Element Method.* Engineering Mechanics Conference, South Bend, IN, June 2012.

Scott, M. H. and **Zhu, M.** *Combined Live Load and Seismic Reliability of Reinforced Concrete Deck-Girder Bridges.* ASCE Structures Congress, Las Vegas, NV, April 2011.

Scott, M.H. and **Zhu, M.** *Extensions of the OpenSees Framework for Particle Finite Element Analysis of Fluid-Structure Interaction.* NSF Engineering Research and Innovation Conference, Atlanta, GA, January 2011. (Poster Presentation)

[Research Projects]

Fluid-structure interaction and Python scripting capabilities in OpenSees.
PEER, 12/15/2017 - 12/14/2018. **PI**, M. H. Scott (co-PI).

Development of Tsunami Design Guide Specifications for Bridges.
ODOT and FHWA, 6/1/2015 - 5/31/2018. **Researcher**

Center for Risk-Based Community Resilience Planning.
NIST, Colorado State, 2/1/2015 - 2/1/2020. **Researcher**

NEESR Planning/Collaborative Research: Simulation and Design Tools for Tsunami Bridge Engineering.
NSF, CMMI-1344695, 10/1/2013 - 9/30/2016. **Researcher**

Validation of OpenSees for Tsunami Effects on Bridge Superstructures.
PEER/Caltrans Lifelines, 9/1/2013 - 6/30/2014. **Researcher**

CAREER: Particle Finite Element Response Sensitivity Analysis of Fluid-Structure Interaction.
NSF CMMI-0847055, 8/1/2009 - 7/31/2014. **Researcher**

Combined Seismic plus Live Load Analysis of Highway Bridges.
OTREC 2009-261, 10/1/2008 - 9/30/2009. **Researcher**

Teaching Experience

CE 585, Matrix Structural Analysis	OSU	Fall 2016	**Instructor**
SURF Program	OSU	Summer 2016	**Mentor**

[Journal Reviews]

Journal of Building Engineering
Computer Methods in Applied Mechanics and Engineering

[Awards]

2012 Best New Contribution to OpenSees (Fluid-Structure Interaction and Particle Finite Element Method)