

Mohammad Sarraf Joshaghani

Education

- 2015–present **Ph.D., Civil Engineering, [University of Houston](#)**, Houston, TX, United States.
Expected graduation date: **August 2019**
Thesis title: *Stabilized mixed discontinuous Galerkin formulation for modeling flow in double porosity/permeability model.*
Supervisor: Dr. K. B. Nakshatrala
- 2012–2014 **M.Sc., Civil Engineering, [University of Houston](#)**, Houston, TX, United States.
Thesis title: *Full-scale testing and numerical Modeling of subsea pipe soil interaction.*
Supervisors: Dr. C. Vipulanandan
Committee: Dr. K. B. Nakshatrala & Dr. G. J. Lim
- 2008–2012 **B.Sc., Civil Engineering, [Azad University of Mashhad](#)**, Mashhad, Iran.

Selected Publications

- PEER-REVIEWED
- 1 **M. S. Joshaghani**, J. Chang, K. B. Nakshatrala, and M. G. Knepley [On composable block solvers and performance spectrum analysis for double porosity/permeability model](#) Available on *arXiv:1808.08328*, 2018. [arXiv link]
 - 2 **M. S. Joshaghani**, S. H. Joodat, and K. B. Nakshatrala [A stabilized mixed discontinuous Galerkin formulation for double porosity/permeability model](#) Available on *arXiv:1805.01389*, 2018. [arXiv link]
 - 3 A. M. Raheem, C. Vipulanandan, and **M. S. Joshaghani** [Non-destructive experimental testing and modeling of electrical impedance behavior of untreated and treated ultra-soft clayey soils](#) *Journal of Rock Mechanics and Geotechnical Engineering* 9(3):543-550, 2017. [Journal link]
 - 4 M. M. R. Mousavi, M. D. Champiri, **M. S. Joshaghani**, and S. Sajjadi [A kinematic measurement for ductile and brittle failure of materials using digital image correlation](#) *AIMS Materials Science* 3(4):1759-1772, 2016. [Journal link]
 - 5 A. M. Raheem, and **M. S. Joshaghani** [Modeling of shears strength-water content relationship of ultra-soft clayey soil.](#) *International Journal of Advanced Research* 4(4):537-545, 2016. [Journal link]
 - 6 **M. S. Joshaghani**, A. M. Raheem, and M. M. R. Mousavi [Analytical modeling of large-scale testing of axial pipe-soil interaction in ultra-soft soil](#) *American Journal of Civil Engineering and Architecture* 4(3):98-105, 2016. [Journal link]
 - 7 C. Vipulanandan, J. A. Yahouide, and **M. S. Joshaghani** [Deepwater axial and lateral sliding pipe-soil interaction model study](#) *Pipelines 2013: Pipelines and Trenchless Construction and Renewals—A Global Perspective* :1583–1592, 2013. [Journal link]

- IN PREPARATION
- 1 K. B. Nakshatrala, and **M. S. Joshaghani** [On interface conditions for flow in coupled free-porous media](#).
 - 2 K. B. Nakshatrala, **M. S. Joshaghani**, and M. Shabouei [A posteriori criterion based on Noether's theorem to assess accuracy of numerical solutions for diffusion equations](#).
 - 3 **M. S. Joshaghani**, A. M. Raheem, and C. Vipulanandan [Large-Scale Testing and Numerical Modeling of Axial Pipe-Soil-Interaction in Ultra-Soft Wyoming Bentonite](#).

Conference Presentations

- 1 **M S. Joshaghani**, and C. Vipulanandan. [A stabilized mixed DG formulation for flow in porous media with double pore-networks](#) *Engineering Mechanics Institute (EMI) Conference*, Boston, MA, May 2018. [oral and poster presentation]
- 2 **M S. Joshaghani**, and A. M. Raheem. [Finite element simulation of deep-water pipe walking phenomenon on ultra soft soil](#) *American Geophysical Union (AGU) Fall Meeting*, San Francisco, CA, December 2014. [poster presentation]
- 3 **M S. Joshaghani**, and C. Vipulanandan. [Testing and modeling of fixed and rolling buoyancy sections](#) *Center for Innovative Grouting Material and Technology (CIGMAT) Conference*, Houston, TX, March 2014. [poster presentation]
- 4 **M S. Joshaghani**, M. R. Gharib, and S. Khatibmasjedi [Modeling and control of an offshore steel jacket platforms using robust controller](#) *ASCE Centennial Conference*, Dallas, TX, September 2013. [oral presentation]
- 5 **M S. Joshaghani**, and C. Vipulanandan. [Finite element simulation of deep-water pipe walking phenomenon on ultra soft soil](#) *Texas Hurricane Center for Innovative Technology Conference*, Houston, TX, August 2013. [poster presentation]
- 6 **M S. Joshaghani**, and C. Vipulanandan. [Axial and lateral sliding of pipe on simulated seabed soft soil](#) *Center for Innovative Grouting Material and Technology (CIGMAT) Conference*, Houston, TX, March 2013. [poster presentation]

Teaching Experience

[Workshop instructor](#) at University of Houston

- o “Solving PDEs in Python: A FEniCS tutorial”, UH Center for Advanced Computing and Data Science (CACDS), Houston, TX, June 2018.
- o “CFD Code Development Frameworks”, UH Center for Thermo-Fluid Mechanics (CTFM), Houston, TX, September 2018.

[Teaching assistant](#) at University of Houston

- Spring 2018 Statics
- Fall 2017 Matrix analysis
- Spring 2017 Statics
- Fall 2016 Solid mechanics

Work Experience

- August 2015–present **Research assistant**, University of Houston, Houston, TX.
- *Developing a theoretical/computational framework for modeling flow in porous media with coupled double pore-networks.*
 - *Proposing a composable block solvers and performance spectrum analysis for double porosity/permeability model.*
 - *Developing a theoretical/mechanistic framework for obtaining the interface condition for porous-fluid domains, employing dissipation theorem and calculus of variations.*
 - *Mathematical modeling of the hemodynamic forces and vascular morphology of the cerebral aneurysm.*
- November 2014– **Structural engineer**, Odebrecht Group, Houston, TX.
- July 2015
- *Reviewed designs and drafts of structural components of 1.1 miles of Grand parkway-SH99 bridges, and performed structural analysis for pre-stressed concrete beams sitting on different caps.*
 - *Provided an interface with design group and resolve non-conformity-reports for superstructures.*
- September 2014– **Intern**, EDI Building Consultants Co., Houston, TX.
- November 2014
- *Analysis and design of steel connections for Williams Tower penthouse roof.*
 - *Structural and damage assessments for Houston Club implosion on Esperson building.*
- August 2012– **Research assistant**, University of Houston, Houston, TX.
- August 2014
- *HPHT subsea pipelines, thermal buckling, full scale testing and mitigation solutions.*
 - *Developing CEL and ALE models of pipe-soil interaction and offshore infrastructures, finite element code development.*
 - *Nonlinear finite element analysis of touchdown zone in steel catenary riser and structural stability of spar platform.*
 - *Modeled and characterized hydraulic fracturing fluid with nano silica proppant.*
- March 2012– **Intern**, Khorasan Beton Sole Construction Co, Mashhad, Iran.
- August 2012
- *Design of commercial reinforced concrete projects and preparing AUTOCAD drawings*
- December 2009– **ESL teacher**, Mehrsajjad English institute, Mashhad, Iran.
- March 2012
- *Instituted classroom management strategies and interactive atmosphere for students of English as a second language.*

Computer skills

Programming Languages	C/C++, FORTRAN, L ^A T _E X, MATLAB, PYTHON, Shell
Scientific libraries	FEniCS/Firedrakes Projects, OpenFOAM, Palablos, Numpy, OpenMP
Commercial softwares	ABAQUS, COMSOL, SAP, PLAXIS
Visualization Packages	AUTOCAD, PARAVIEW, VISIT

Languages

Persian	Native Speaker.
English	Fluent.

Awards & Honors

- 2018 **Travel award to attend the SIAM CSE19 Conference in Spokane, Washington.**
Society for Industrial and Applied Mathematics (SIAM)

- 2018 **Winner of computational mechanics student competition.**
Engineering Mechanics Institute (EMI), Massachusetts Institute of Technology [UH eNews Coverage]
- 2017-2018 **Future Faculty Program Fellowship.**
Cullen college of engineering, University of Houston
- 2018-present **Center for Advanced Computing and Data Science Fellow.**
University of Houston
- 2015-present **UH Doctoral Student Tuition Fellowship.**
University of Houston
- 2015-2017 **Houston Endowment and Presidential Fellowship.**
Cullen college of engineering
- 2013-2014 **Graduate Assistant Tuition Fellowship (GATF).**
University of Houston
- 2012-2014 **Graduate Leadership Scholarship Fellowship.**
University of Houston
- 2003 **Awarded best K-12 student paper.**
Iranian national competition for K-12 students, National Organization for Development of Exceptional Talents

References

- [Professor Kalyana Babu Nakshatrala](#)
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- [Professor. Cumaraswamy Vipulanandan](#)
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(Additional references available upon request.)