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EDUCATION	Ph.D., Civil and Environmental Engineering, MIT, Cambridge, MA, USA 11/2013 <ul style="list-style-type: none">• Advisers: Professor Andrew J. Whittle and Professor Roland J.-M. Pellenq• Thesis Topic: <i>Multiscale modeling of clay-water systems</i> M.Sc., Civil, Environmental, and Architectural Engineering, University of Colorado, Boulder, CO, USA 07/2007 <ul style="list-style-type: none">• Adviser: Professor Richard A. Regueiro• Thesis Topic: <i>Three-dimensional finite element implementation for a dynamic solid-fluid mixture at finite strain</i> M.Sc., Civil Engineering, University of Tehran, Tehran, IRI 01/2002 <ul style="list-style-type: none">• Adviser: Professor Asadollah Noorzad• Thesis Topic: <i>Wave propagation in continuously non-homogeneous soil and site effects</i> B.Sc., Civil Engineering, Tehran Polytechnic University, Tehran, IRI 09/1999
JOURNAL PUBLICATIONS	<p>[1] D. Ebrahimi, A. J. Whittle, R. J.-M. Pellenq, "Effect of polydispersity of clay platelets on the aggregation and mechanical properties of clay at mesoscale", invited paper for <i>special issue of Clays and Clay Minerals on computational molecular modeling</i>, In review.</p> <p>[2] D. Ebrahimi, R. J.-M. Pellenq, A. J. Whittle, "Mesoscale simulation of clay aggregate formation and mechanical properties", <i>Granular matter</i>, In review.</p> <p>[3] D. Ebrahimi, A. J. Whittle, R. J.-M. Pellenq, "Mesoscale Properties of Clay Aggregates from Potential of Mean Force Representation of Interactions between Nanoplatelets", <i>J. Chem. Phys.</i>, 140, 154309, 2014.</p> <p>[4] H. Hantal, L. Brochard, H. Laubie, D. Ebrahimi, R. J. -M. Pellenq, F. J. Ulm, B. Coasne, "Atomistic scale modeling of elastic and failure properties of clays", <i>Molecular Physics</i>, 112 (9-10), 1294-1305, 2014.</p> <p>[5] D. Ebrahimi, R. J.-M. Pellenq, A. J. Whittle, "Nanoscale Elastic Properties of Montmorillonite upon Water Adsorption" <i>Langmuir</i>, 28 (49), 16855-16863, 2012.</p> <p>[6] R. A. Regueiro, D. Ebrahimi, "Implicit dynamic three-dimensional finite element analysis of an inelastic biphasic mixture at finite strain. Part 1: application to a simple geomaterial", <i>Comp. Meth. App. Mech. Engr.</i>, 199, 2024-2049, 2010.</p> <p>[7] D. Ebrahimi, O. Tokareva, N. G. Rim, J. Y. Wong, D. L. Kaplan, M. J. Buehler, <i>Silk-Its Mysteries, How It Is Made, and How It Is Used</i>, <i>ACS Biomaterials, Science & Engineering</i>, 2015 (review article).</p> <p>[8] S. Ling, N. Dinjaski, D. Ebrahimi, J. Wong, D. L. Kaplan, M. J. Buehler, Insights into the Conformation Transition of Recombinant Spidroins via Integration of Time-Resolved FTIR Spectroscopy and Molecular Dynamic Simulation, In submission.</p> <p>[9] O. Tokareva, M. M. Jacobsen, D. Ebrahimi, W. Huang, S. Ling, N. Dinjaski, D. Li, M. Simon, C. Staii, K. Quinn, I. Georgakoudi, M. J. Buehler, J. Y. Wong, D. L. Kaplan, N-terminal Domain in Spider Silk Structure-Function, In submission.</p>

- [10] E. Roberts, N. G. Rim, O. Tokareva, D. Ebrahimi, M. J. Buehler, D. L. Kaplan, J. Wong, Predicting Biomaterial Properties Through Multiscale Modeling and Protein Design, to be submitted to *Nature Protocols*.
- CONFERENCE PROCEEDINGS
- [1] D. Ebrahimi, R. J.-M. Pellenq, A. J. Whittle, "Mesoscale simulation of clay aggregate formation and mechanical properties", *Geomechanics from Micro to Macro*, CRC Press, 539-544, 2014.
- [2] D. Ebrahimi, R. J.-M. Pellenq, A. J. Whittle, "Simulation of hydration and Elastic Properties of Montmorillonite using Molecular Dynamics", *Multiscale and Multiphysics Processes in Geomechanics*, Springer Berlin Heidelberg, 105-108, 2011.
- [3] D. Ebrahimi, R. A. Regueiro, "Three-dimensional finite element implementation for a dynamic solid-fluid mixture at finite strain", *9th US national congress on computational mechanics*, San Francisco, CA, USA, 2007.
- [4] A. Noorzad, A. Noorzad, D. Ebrahimi, "The effect of vertical nonhomogeneity of half space medium on the vertical impedance of rigid circular foundations", *Proceedings of the International conference "Soil Structure Interaction - Calculation methods and engineering practice"*, St. Petersburg, Russia, 2005.
- [5] A. Noorzad, A. Noorzad, D. Ebrahimi, "Investigation of site effect on the wave- propagation in continuously inhomogeneous soil subjected to seismic motion", *Proceedings of 56th Canadian Geotechnical Conference, Winnipeg, Manitoba, Canada, 4th joint IAHCNC/CGS conference*, 2003.
- BOOK CHAPTER
- [1] A. J. Whittle, D. Ebrahimi, R. J.-M. Pellenq, "Mesoscale Modeling and Properties of Clay Aggregates", *Holistic Simulation of Geotechnical Installation Processes*, Springer Berlin Heidelberg, Vol.80, to be published by Spring 2016.
- TALKS
- [1] National Institutes of Health (NIH), Bethesda, MD, USA, September 2015, *Multiscale Modeling (MSM) Consortium Meeting, Integracy Modeling and Analysis Group (IMAG)* (poster session), "Biomaterials: Predictive Design, Synthesis and Material Properties".
- [2] Massachusetts Institute of Technology, Cambridge, MA, USA, August 2015, *2nd Micromeritics Workshop / GdRi* (poster session), "Multiscale modelling of textural and mechanical properties of clays".
- [3] The George Washington University, Washington, DC, USA, March 2015, *CEE Seminar* (Invited talk), "Meso-scale modeling of clay water systems".
- [4] University of New Hampshire, NH, USA, December 2014, *Geotechnical Engineering, Research Group Seminar* (Invited talk), "Mesoscale Simulation of Clay Aggregate Formation & Mechanical Properties".
- [5] Massachusetts Institute of Technology, Cambridge, MA, USA, October 2014, *CEE Seminar Series: Mechanics and Infrastructure* (Invited talk), "What makes spider silk stronger than steel? A molecular insight to the spider protein building blocks".
- [6] University of Massachusetts, Dartmouth, MA, USA, March 2013, *7th CEN departmental seminar* (Invited talk), "Molecular Simulations of Clay Hydration: Structure and Mechanical Properties".
- [7] University of Massachusetts, Amherst, MA, USA, October 2012, *Northeast Geotechnical Graduate Research Symposium* (Conference talk) "Atomistic simulation of clay-water system".

- [8] Stanford University, Stanford, CA, USA, September 2011, *Multiscale and Multiphysics Processes in Geomechanics* (Poster session), "Simulation of hydration and Elastic Properties of Montmorillonite using Molecular Dynamics".
- [9] University of California, Berkeley, CA, USA, July 2007, *9th US national congress on computational mechanics* (Conference talk), "Three-dimensional finite element implementation for a dynamic solid-fluid mixture at finite strain".
- RESEARCH GRANT [1] Texas Advanced Computing Center Resources Award, 271,254 CPU-hours, October 2014-October 2015.
- JOURNAL REVIEWER [1] ASCE Journal of Engineering Mechanics
[2] Applied Clay Science, Elsevier
- TEACHING EXPERIENCE
- University of Colorado, Boulder, CO
Teaching Assistant for
- Geotechnical Engineering 2 *Spring 2006*
 - Geotechnical Engineering 1 *Fall 2005*
 - Geotechnical Engineering 2 *Fall 2005*
- University of Tehran, Tehran, IRI
Teaching Assistant for
- Advanced Engineering Mathematics *Fall 2000*
- Tehran Polytechnic University, Tehran, IRI
Teaching Assistant for
- Strength of Materials 2 *Fall 1998*
 - Statics *Fall 1997*
- HONORS AND AWARDS
- Schoettler Fellowship Award, Dept. of Civil & Environmental Eng., MIT *September 2007*
 - Fellowship for the 9th US National Congress on Computational Mechanics, San Francisco, CA *July 2007*
 - University of Colorado Fellowship Award, University of Colorado Boulder *September 2006*
- PROFESSIONAL EXPERIENCE
- CVR Consulting Engineers, Tehran, IRI
Geotechnical and Structural Engineer *01/2003-07/2005*
CVR Consulting Engineers is principally established in order to carry out analysis and design for various types of geotechnical structures.
- Perlite Construction Co., Tehran, IRI
Geotechnical and Structural Engineer *11/2001-01/2003*
Perlite Construction Co. is a general contractor that executed a large number of projects including: buildings, highways, bridges, tunnels, dams, hydro power plants, ship yards, oil and gas refineries, offshore installations, and innovative, infrastructural engineering works.
- Serik Construction Co., Tehran, IRI
Structural Engineer *01/2001-11/2001*
Serik Construction Co. is a general contractor that executed a large number of projects including: buildings, highways, hydro power plants.
- Sayol Construction Co., Tehran, IRI
Structural Engineer *06/1999-03/2000*
Sayol Construction Co. is a general contractor that executed a large number of projects including: buildings and roads.

LEADERSHIP
EXPERIENCE

- The president of Persian Students Association at MIT ([PSA](#)) (2009-2010)
- The vice president of [PSA](#) (2008-2009)

REFERENCES

[Professor Andrew J. Whittle](#) (e-mail: ajwhittl@mit.edu; phone: +1-617-253-7122)

- Professor, Department of Civil and Environmental Engineering, MIT
- ★ *Professor Whittle was my PhD supervisor.*

[Professor Roland J.-M. Pellenq](#) (e-mail: pellenq@mit.edu; phone: +1-617-253-7117)

- Senior Research Scientist, Department of Civil and Environmental Engineering, MIT
- ★ *Professor Pellenq was my PhD supervisor.*

[Professor Markus J. Buehler](#) (e-mail: mbuehler@mit.edu; phone: +1-617-452-2750)

- Professor, Department Head, Department of Civil and Environmental Engineering, MIT
- ★ *Professor Buehler is my current supervisor.*

[Professor Richard A. Regueiro](#) (e-mail: regueiro@colorado.edu; phone: +1-303-492-8026)

- Associate Professor, Department of Civil, Environmental and Architectural Engineering, University of Colorado Boulder
- ★ *Professor Regueiro was my MSc supervisor.*