

Exponent®
Engineering & Scientific Consulting

David Groholski, Ph.D., P.E.

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Professional Profile

Dr. Groholski specializes in soil mechanics and geotechnical engineering with proficiency in the analysis of civil infrastructure, foundations, retaining structures, earthquake engineering, and numerical methods. His technical expertise also includes soil mechanics applied to slope stability, expansive soils, and dynamic soil behavior.

Dr. Groholski provides geotechnical consultation on the engineering design, construction, and performance of civil, urban, and rural infrastructure. His project portfolio includes adjacent constructions in urban environments; construction claims; grain silos; housing communities and individual residences; dams, cofferdams, reservoirs, and canals; and cantilever, conventional gravity, prefabricated modular, and mechanically stabilized earth (MSE) walls.

Dr. Groholski has performed research on topics including seismic site response analysis, characterization of soil constitutive behavior and pore pressure response, constitutive modeling, and the development of integrated tools for predicting, monitoring, and controlling ground movements due to excavations. He has experience in soil mechanics, strength characterization, static slope stability analyses, liquefaction analyses, geotechnical monitoring, rigid and flexible retaining walls, deep excavations, foundation design, earth pressures, soil settlement and analysis of piles. Dr. Groholski also has experience in conducting studies on ground vibrations, site amplification, wave propagation, liquefaction, and lateral spreading.

Prior to joining Exponent, Dr. Groholski was a research assistant in the Department of Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign (UIUC). His doctoral research focused on the development of an inverse analysis framework to extract dynamic (seismic) soil behavior and excess pore pressure response from downhole array field measurements. During his time at UIUC, Dr. Groholski contributed to other research projects including the development of next-generation laboratory soil testing devices and the development of the 1-D site response analysis program, DEEPSOIL. He also has experience with laser scanning activities, image-based reasoning techniques, neural network models, and the computer programming languages of Java, C++, and Visual Basic. He has assisted in the teaching of an undergraduate course on the fundamentals of geotechnical engineering.

Academic Credentials & Professional Honors

Ph.D., Civil Engineering, University of Illinois, Urbana-Champaign, 2012

M.S., Civil Engineering, University of Illinois, Urbana-Champaign, 2007

B.S., Civil Engineering, University of Illinois, Urbana-Champaign, 2005

Ralph B. Peck Fellowship, University of Illinois at Urbana-Champaign, April 2010

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Licenses and Certifications

Professional Engineer Civil, California, #83779

Professional Affiliations

American Society of Civil Engineers—ASCE

Earthquake Engineering Research Institute—EERI

Publications

Groholski DR, Hashash YMA, Musgrove M, Harmon J, Kim B. Evaluation of 1-D non-linear site response analysis using a General Quadratic/Hyperbolic strength-controlled constitutive model. Proceedings, 6th International Conference on Earthquake Geotechnical Engineering, Christchurch, New Zealand, 2015.

Groholski DR, Hashash YMA, Matasovic N. Learning of pore pressure response and dynamic soil behavior from downhole array measurements. Soil Dynamics and Earthquake Engineering, (61-62):40-56, 2014.

Groholski DR, Hashash YMA. Development of an inverse analysis framework for extracting dynamic soil behavior and pore pressure response from downhole array measurements. International Journal for Numerical and Analytical Methods in Geomechanics, 37(12):1867-1890, 2013.

Hashash YMA, Groholski DR, Kim B. Enhancing site response modeling through downhole array recordings. 4th IASPEI/IAEE International Symposium: Effects of Surface Geology on Strong Ground Motion (ESG4), University of California Santa Barbara, Santa Barbara, CA, 2011.

Hashash YMA, Phillips C, Groholski DR. Recent advances in non-linear site response analysis. 5th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics and Symposium in Honor of Professor I.M. Idriss, San Diego, CA, 2010.

Groholski DR, Hashash YMA. Extraction of dynamic pore water pressure generation behavior via inverse analysis in seismic site response modeling. Proceedings, 1st International Symposium on Computational Geomechanics (ComGeo I), Juan-les-Pins, Cote d'Azur, France, 2009.

Hashash YMA, Quinones-Rozo CA, Groholski DR. Tracking of excavation activities by laser scanning and image reasoning-based techniques. Geotechnical News, 27(1):35-37, 2009.

Groholski DR, Hashash YMA. Employing visualization techniques for learning of constitutive relations. ASCE Conference Proceedings 187 - GeoCongress 2006: Geotechnical Engineering in the Information Technology Age, 2006.