Tarek Abdoun

Professor, Civil and Environmental Engineering at Rensselaer Polytechnic Institute
Troy, NY, US

Specializes in centrifuge modeling, soil-structure interaction, soil remediation, field advanced sensing, and data visualization

Biography

Tarek Abdoun is a professor of civil and environmental engineering, and the Technical Director of the Network for Earthquake Engineering Simulation facility at Rensselaer. Abdoun's primary research interests are centrifuge modeling, soil-structure interaction, soil remediation, field advanced sensing, and data visualization. He has conducted, and advised other researchers on, successful high-quality centrifuge model tests conducted at the Rensselaer centrifuge. These centrifuge experiments, supplemented by high-quality reliable measurements, have been used to develop or calibrate new design or retrofit engineering methods. Abdoun led the Rensselaer physical modelling research team that clarified the failure mechanisms of some of the New Orleans levees during Hurricane Katrina, providing critical feedback to the corresponding numerical analyses. He worked closely on this with the US Army Corps of Engineers and the corresponding U.S. National Academies Oversight Committee. His work has been cited in news reports on national networks including CNN, NBC, Discovery, and ASCE News, and it was referenced in great detail in an article evaluating the lessons from Hurricane Katrina in the Spring 2007 issue of The Bridge, published by the National Academy of Engineering. Abdoun has designed and developed a novel wireless shape-acceleration sensor array, taking advantage of new advances in fiber optic and MEMS sensor technologies. The sensors are capable of measuring ground acceleration and permanent deformation. Each sensor array is connected to a wireless sensor node to enable real time monitoring and informed assessment of pending failure. He is a member of several technical committees and the editorial board of technical journals, including ASCE Geo Institute Committee for Earthquake Engineering and Soil Dynamics, ASCE Journal of Geotechnical and Geoenvironmental Engineering, Canadian Journal, etc. Abdoun is the recipient of Rensselaer's 2004, 2006, & 2007 School of Engineering Excellence in Research & Teaching Award, and the 2004 prestigious Casimir Gzowski awarded by the Canadian Society for Civil Engineering. He has published more than 120 publications and technical reports.

Areas of Expertise

Earthquakes, Centrifuge Modeling, Soil-Structure Interaction, Data Visualization, Soil Remediation, Field Advanced Sensing

Education

Cairo University
B.S. Structural Engineering

Rensselaer Polytechnic Institute
M.S. Geotechnical Engineering

Rensselaer Polytechnic Institute
Ph.D. Geotechnical Engineering
