

Welcome

Seminar Series of the Department of Computer Science Electrical Engineering Presents

Health Monitoring of Earth Structures

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Abstract

The American Society of Civil Engineers' recent report card assigned a grade "D" for USA's Infrastructures. In other words the US infrastructures need tremendous effort to come up to an acceptable level. Recent bridge collapse in Minnesota brings home the message. Health monitoring or instrumentation to monitor potential for failure has gained momentum and presents an upcoming challenge to engineering community.

This introductory presentation is focused on monitoring instrumentation needs of earth structures such as dams, foundations, landslides, tunnels, retaining walls, highways, landfills and coastal structures. The earth structures usually have tendency to deteriorate with time; in terms of strength loss or strain softening with time. A health monitoring system could indicate when the structure is at a threshold so that remediation or retrofit can be implemented in time. Civil engineering structures are usually large structures that necessitate use of large number of sampling points for monitoring. This Large data point gathering, data integration, system compatibility, and available expensive technology present a challenge in health monitoring of earth structures.

After natural calamities such as hurricane and earthquake, a great deal of effort is required to inspect and assess the damage. The inspection after failure is mostly visual; if a health monitoring system were in place, the damage assessment would be somewhat easier.

The presentation will give an overview of the existing instrumentation techniques, needs and problems of data acquisition and integration that are faced by the practicing engineers.

Bio Sketch: Lok Sharma. P. E., holds an MS degree in Soil mechanics and Foundation Engineering from University of Alberta, Canada. He is an internationally known engineer and has worked in the geotechnical engineering field for over 33 years. He has also worked on a variety of projects relating to slope failure, mining, oil sands, industrial development, water resources and transportation facilities. In Kansas City area, he has worked on projects relating to dams, deep foundations, shored excavations, MSE/soil nail walls, machine foundations, seismic assessments, tunnels, retaining structures, high embankments and other related geotechnical structures. Mr. Sharma joined Terracon in 1990 as a senior consultant and is currently a senior principal of the company.