Ahmed Ali, Electrical Engineering

University: University of Missouri- Rolla
Year in School: Senior
Hometown: St. Louis, Missouri
Faculty Mentor: Dr. Gregory Triplett, Electrical & Computer Engineering

Funding Source: Louis Stokes Missouri Alliance for Minority Participation

Neural network analysis of embeddable sensors used in nondestructive evaluation application

Ahmed Ali, Dr. Gregory E Triplett, and Glenn Washer

Non-destructive evaluation (NDE) is essential for assessing the civil infrastructure. Electromagnetic Acoustic Transducers (EMATs) technology, specifically, offers a distinctive capability to effectively assess the condition of concrete structures during their service life, which is critically important to maintaining the safety and efficiency of our infrastructure. Unfortunately, some meaningful relationships between EMAT responses and conditions of concrete structures may not be readily apparent. Neural network technology is potentially powerful in this NDE application because it can model non-liner or noisy data sets and bring to light relationships between the EMAT signals and the conditions of the infrastructure. The goal of this project is to analyze real-time data from EMATs on strained steel strands for the development of a tool-kit for analyzing concrete structures.