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Seminar

Ground Penetrating Radar: A versatile sensing tool for infrastructure and the environment

Ground penetrating radar (GPR) is a site investigation technology that helps us detect hidden features and targets. It has a great range of applications especially for non-destructive testing of important civil infrastructure elements and in general shallow depth site investigation. For example, GPRs are customarily used for buried utility detection, concrete assessment and inspection and these are just few of the areas where GPR plays a very important role. Its usefulness is much wider than civil engineering site investigation, ranging from landmine detection and archaeological investigations to glacial probing and other geophysical applications. This talk will give an overview of the fundamental principles of GPR and what is the key mechanism of detection behind this powerful sensing technology. In addition, it will present some highlights of the fundamental research that is carried out in theSchool of Engineering at the Univeristy of Edinburgh on advanced simulation and automatic interpretation of complex GPR data.

About the speaker:

In addition to his role as the Director of the Civil and Environmental Engineering Discipline, Dr Antonis Giannopoulos is a Reader in the School of Engineering at the Univeristy of Edinburgh. Antonis's background is on engineering geophysics and geology and on advanced computational modelling methods for ground penetrating radar (GPR). He is researching the engineering applications of ground penetrating radar to complex sensing problems and he is focusing in particular in developing powerful numerical modelling tools to support the interpretation and understanding of complex GPR data. He created gprMax, a freely available finite-difference time-domain simulator (www.gprmax.com), that is used by many researchers worldwide, a number of GPR manufacturers and industry and he is directing its continuous development and future enhancement. He was the General Chair of the 9th International Workshop on Advanced Ground Penetrating Radar, Edinburgh, 2017.