

Signal Processing Refineries – Extracting Useful information from Signals

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**Venue: Billings Room 3.04, 3rd floor. Electrical & Electronic Engineering Building
University of Western Australia, Crawley**

This seminar is open to the public and admission is free to all IEEE members and non members

Abstract:

Extracting useful information from signals is a problem that features in most engineering applications. This task is made challenging by the contamination of the useful signal with noise and interference, by the fact that many useful signals overlap making their separation difficult. In Nuclear Magnetic Resonance (NMR) Spectroscopy, the signal is a superposition of decaying exponentials. The crowded spectra are difficult to deal with, a problem that is made worse by experimental imperfections that lead to signal distortion. In MEMS, the same model holds. In fact these models occur in a myriad of applications, including radar, sonar, audio and acoustics, etc... In this talk he will present a brief overview of his research interests and then detail his work on parameter estimation.

Biography:

Elias Aboutanios received a Bachelor in Engineering in 1997, from UNSW and the PhD degree in 2003, from the University of Technology, Sydney (UTS). In 1993 he was awarded the UNSW Co-op Scholarship and in 1994 received the Sydney Electricity scholarship. In 1997 he joined EnergyAustralia as an electrical engineer. In 1998 he commenced his work toward the PhD degree at UTS where he was a member of the CRC Satellite Systems, working on the Ka Band Earth station. Between October 2003 and February 2007, he was a research fellow with the Institute for Digital Communications at the University of Edinburgh where he conducted research on Space Time Adaptive Processing for radar target detection. He is currently a senior lecturer at the UNSW. In 2011 he secured over \$1M in funding to establish Australia's first Masters in Satellite Systems Engineering (launched in 2014). He initiated and leads UNSW's contribution to the international QB50 program (which will launch 50 nanosatellites to low earth orbit). He has developed and teaches the novel Design Proficiency subject for which he has won the Faculty of Engineering teaching excellence award. He has also won the Postgraduate Research Council Excellence in Postgraduate Research Supervision Award.



His research interests include parameter estimation, algorithm optimization and analysis, adaptive and statistical signal processing and their application in the contexts of radar, Nuclear Magnetic Resonance, GPS, and Smart Grids. He is the joint holder of a patent on frequency estimation.