Prof. John James Soraghan, received the B.Eng. (Hons.) and M.Eng.Sc. Degrees in electronic engineering from University College Dublin, Dublin, Ireland, in 1978 and 1983, respectively, and the Ph.D. degree in electronic engineering from the University of Southampton, Southampton, U.K., in 1989. His doctoral research focused on synthetic aperture radar processing on the distributed array processor. He currently holds the Texas Instruments Chair in Signal Processing with the University of Strathclyde. His main research interests are signal processing theories, algorithms, and architectures with applications to remote sensing, biomedicine, telecommunications, and condition monitoring.

Prof. Ajit Kumar Sahoo, is an assistant professor at National institute of Technology, Rourkela since 2007. His research interest includes radar signal processing, soft computing, wireless sensor networks.

Prof Sarat Kumar Patra is a Professor at National institute of Technology, Rourkela since 2006. He obtained his PhD degree from University of Edinburgh, UK in 1998. His research interests include wireless and mobile communication, optical communication, cognitive radio, fuzzy systems.

About NIT Rourkela

NIT Rourkela is one of the premier national level institutions for technical education in the country and is funded by MHRD, Government of India. The institute established 1961 as Regional Engineering College Rourkela and was elevated to a deemed university under the name of National Institute of Technology, Rourkela in the year 2002. According to the Times Higher Education (THE) ranking of the World's best Universities 2017, it is ranked in top 800 institutes of world, and it is only NIT to feature in the list.

 The main objective of the Institute is to produce quality Engineers and Scientists in Graduate and Post-Graduate levels in various branches of engineering and science. The institute with a lush green campus area of 650 acres has twenty departments, three academic centers and six service centers. The Institute has a very vibrant campus life with ten hall of residence for students, residential quarters for employees and two guest houses for visitors. The Institute has been consistently ranked among the best technical institutes in India. The Institute has been modernized by several foreign collaborative research projects. A very good number of sponsored research and consultancy projects are running at present.

For More Information
Visit:http://nitrkl.ac.in/Academic/1Department/ec/CEP/GIANec.aspx

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GIAN
GLOBAL INITIATIVE OF ACADEMIC NETWORKS

Advanced Digital Signal Processing

March 6 – 10, 2017

National Institute of Technology
Rourkela, Odisha, India

Under the aegis

Government of India
Ministry of Human Resources and Development

Course Overview

Digital signal processing (DSP) is the use of digital processing algorithms implemented on digital hardware platform such as computers, to perform a wide variety of signal processing operations. DSP has been applied on speech processing, digital image processing, biomedical signal and image processing, audio signal processing, digital communications etc. A common goal of the engineering field of signal processing is to reconstruct a signal from a series of sampled measurements. In general, this task is impossible because it is difficult to reconstruct a signal during the time instants when the signal is not measured. However, with prior knowledge or assumptions about the signal, it turns out to be possible to perfectly reconstruct a signal from a series of measurements. Over time, engineers have improved their understanding of which assumptions are practical and how they can be generalized. An early breakthrough in signal processing was the Nyquist–Shannon sampling theorem. The main idea is that with prior knowledge about constraints on the signal's frequencies, fewer samples are needed to reconstruct the signal. Compressed sensing (also known as compressive sensing, compressive sampling, or sparse sampling) is a signal processing technique for efficiently acquiring and reconstructing a signal, thereby finding solutions to underdetermined linear systems. This is based on the principle that the sparsity of a signal can be exploited to recover it from far fewer samples than that required by the Shannon-Nyquist sampling theorem.

This course will cover some fundamentals of DSP and Advanced Digital Signal Processing: Sampling and Reconstruction, Transforms and their Applications, Digital Filters, Linear and Non-linear Adaptive Signal Processing, Compressive Sensing and Sparse Signals, Fundamentals of Radar Signal Processing, Synthetic Aperture Radar (SAR). In addition, the course will cover current research applications, further directions and useful resources with simulations.

Course Objectives

Primary objectives of the course are as follows:
- To provide an in-depth understanding of the principles and concepts of advanced digital signal processing.
- To introduce compressive sensing and discuss its application to automatic target recognition.
- To provide an understanding on current research opportunities in advanced digital signal processing field.
- Provide hands on practices on signal & system, filter design, SAR Image Production etc. in MATLAB environment.

You Should Attend If…

- You are a Signal Processing/Communication engineer or research scientist interested in development and application of Advanced Digital Signal Processing.
- You are a researcher in the field of Signal Processing.
- You are a student or faculty from academic institution interested in learning/ to take up research in the field of Signal Processing.

Registration/Course Fee (Non-refundable)

The participation fee for taking the course is as follows:
- Participants from abroad : US $300
- Industry/ Research Organizations: Rs. 6000/-
- Academic Institutions: Rs.2000/-
- Students (India): Rs.1000/-

The above fee includes all instructional materials, computer use for tutorials and assignments. The registration/course fee is to be paid through a Demand Draft which should be drawn in favor of **'Continuing Education, NIT Rourkela'** payable at **SBI, NIT Rourkela Branch (Code:2109)** or by NEFT/RTGS to A/C No.: **10138951784, State Bank of India, NIT Rourkela Branch IFSC Code: SBIN0002109.**

In addition to the above fee, one-time online fee of Rs.500/- is to be paid for registration in the GIAN web portal. (See registration process)

Accommodation

Out station participants can be provided accommodation and boarding in the Institute Guest Houses inside the campus on direct payment as the Registration fee does not include lodging and boarding. Limited accommodation is available at the Institute Guest Houses which may be provided on first-cum-first serve basis. The lodging (twin sharing) and boarding charges may range from Rs.2000/- to Rs.3000/- for the entire duration of the course. Participants may also arrange their own accommodation.

Important Dates

- **Last date for receiving applications:** 20th Feb 2017
- **Last date for Intimation to Participants**: 22nd Feb 2017
- **Course Dates:** March 6 – 10, 2017

Registration Process

Registration for any GIAN course is a two-step process.

Step 1:
One Time Registration with the GIAN web portal of IIT Kharagpur using the following steps:
- Create login and password at: http://www.gian.iitkgp.ac.in/GREGN/index
- Complete the personal details and pay Rs. 500/- (non-refundable) through the online payment gateway.
- Select the Course(s) you are interested in.
- Confirm your application.

(Individuals who have already registered to GIAN earlier do not need to repeat)

Step 2:
Course registration with the course coordinator.
- Institute registration process is an offline process. The participants are required to take print out of Registration Form. The registration form is available at: http://nitrkl.ac.in/Academic/1Department/ec/CEP/GIANec.aspx
- He/she then may proceed for the course registration by filling out the registration form and paying the registration course fee.

Documents to be sent online

- Scanned copy of filled in "Registration Form".
- Scanned copy of "Demand Draft/ receipt of NEFT".

Above documents must be sent to course coordinator via email: ajitsahoo@nitrkl.ac.in.

Documents to be sent by post

- Original registration form.
- Demand Draft/ receipt of NEFT.

The above documents must be sent by post to:
Prof. Ajit Kumar Sahoo,
Electronics and Communication Engineering,
National Institute of Technology Rourkela,
Odisha, India-769008.
The DD/Receipt of NEFT and the original registration form must reach to the coordinator on or before **20th February 2017.**

Note:

Maximum number of students: 50.
(Participants will be selected on first-cum-first serve basis)