

Advanced Sliding Mode Control and Estimation for Real Complex Systems of the 21st Century

Overview

As the world becomes more and more technology driven, large numbers of increasingly complex systems continue to emerge. It is imperative that these systems deliver the desired output even in uncertain environments. The need to control and monitor such complex, uncertain systems is imperative. Sliding mode control (SMC) has emerged as a highly capable robust control and estimation methodology in the later part of the 20th century. At the heart of the paradigm are simple switched control injections, which deliver the highly desired property of insensitiveness towards unwanted disturbances as well as robustness to uncertainties affecting the system.

Much work have been done on both theoretical development and practical implementation of SMC and the literature is vast and rich. With its applicability to real complex systems of the 21st century along with its simple design, SMC is finding huge popularity amongst researchers and control engineers all over the world.

The primary objectives of the course are as follows:

- i) Exposing participants to the fundamentals of sliding mode control and observation.
- ii) Build confidence and capability amongst the participants in the application of robust control and estimation tools and techniques.
- iii) Providing exposure to practical problems and their solutions, through case studies and live projects.
- iv) Enhancing the capability of the participants to apply robust control and estimation methods in a broad range of application domains.

Modules	A. Sliding Mode Controllers, Observers and Differentiators: 24-25 OCT 2017 B. Control and Observation of Complex Systems: 26 OCT 2017 C. Discrete Time Design with Sliding Modes: 27 OCT 2017 Number of participants for the course will be limited to thirty.
You Should Attend If...	<ul style="list-style-type: none">▪ Engineers, mathematicians and researchers from industry, service, government organizations including R&D centers.▪ Students at postgraduate level or higher, research scholars and faculty from academic and technical institutions working on control theory and applications.
Fees	The participation fees for taking the course is as follows: Participants from abroad : 200 USD Industry/ Research Organizations in India : 10000 INR Faculties in Academia : 5000 INR Students in Academia : 2000 INR

The above fee includes all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility.

The participants will be provided with accommodation on payment basis.

The Faculty



Professor Sarah Spurgeon OBE, FEng, FInstMC, FIET, FIMA is Professor of Control Engineering and Head of Department of Electronic and Electrical Engineering at University College London in the UK. She is President of the Institute of Measurement and Control. Sarah Spurgeon's research interests are in the area of systems modelling and analysis, robust control and estimation in which areas she has published over 270 refereed research papers. She was awarded the Honeywell International Medal for 'distinguished contribution as a control and measurement technologist to developing the theory of control' in 2010 and an IEEE Millennium Medal in 2000. She is currently a member of the Council of the International Federation of Automatic Control (IFAC) and a member of the General Assembly of the European Control Association. Within the UK she is a Board Member of EngineeringUK.



Dr. Sohom Chakrabarty did his PhD in Control Systems from Indian Institute of Technology Bombay, India. His work contributed to the advancements in discrete time sliding mode control, which is a modern robust control methodology having wide applications in present day systems design. After PhD, he was engaged as a Research Associate in University of Kent, before joining Indian Institute of Technology Roorkee as an Assistant Professor in Electrical Engineering Department. He had also been a Visiting Researcher with Lodz University of Technology, Poland. Apart from publications in significant journals like Automatica, ISA Transactions, etc., he also has two book chapters published by IET and InTechOpen to his credit. At present, his research interests are control and coordination of multicopter systems, networked control systems and modelling and analysis of biological systems. He has an ongoing project on advanced discrete time sliding mode control algorithms for multicopter systems.

Course Coordinator

Dr. Sohom Chakrabarty
Phone: +91-1332-284880
E-mail: sohomfee@iitr.ac.in

<http://www.gian.iitkgp.ac.in/GREGN>