

Elenco dei moduli di dottorato per l'anno 2013-14

MODULO A

Titolo: *Silicon RFIC Design*

Docenti: Federico Alimenti, Paolo Mezzanotte

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Periodo delle lezioni: giugno 2013

PROGRAMMA

- Introduction to CAD tools for RFIC design
- Electromagnetic simulation of passive components in Silicon Technologies
- State-of-the-art design techniques of Power Amplifiers in CMOS technologies: Part I
- Introduction to RFIC packaging and electromagnetic design
- State-of-the-art design techniques of Power Amplifiers in CMOS technologies: Part II
- Introduction to layout design
- Live CAD session with EM structures simulations
- Live CAD session with CMOS Power Amplifier simulations
- Final test – verification of the learning objectives

MODULO B

Titolo: Modelli e strumenti avanzati per il controllo automatico
Docente: Antonio Ficola, Mario Fravolini, Paolo Valigi
Contatto docente: [antonio.ficola,mario.fravolini,paolo.valigi]@unipg.it
Periodo delle lezioni: luglio 2013

PROGRAMMA

- Introduction: Course Introduction
- Issues in Model-Based Fault Diagnosis
- Fault Detection and Isolation (FDI) Methods based on Analytical Redundancy
- Model-based Fault Detection Methods
- The Robustness Problem in Fault Detection
- System Identification for Robust FDI
- The Residual Generation Problem and techniques
- Fuzzy Logic and Neural Networks for Residual Generation and Fault Diagnosis
- Output Observers for Robust Residual Generation
- Unknown Input Observer (UIO) design
- Kalman Filtering and FDI from Noisy Measurements
- Residual Robustness to Disturbances and Uncertainties
- Machine learning techniques.
- Progetto e realizzazione di filtri,
- filtraggio a la Kalman,
- esempi in matlab ed applicazioni alla fusione sensoriale.

MODULO C

Titolo: *Compressione di dati multimediali*

Docente: Fabrizio Frescura

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Periodo delle lezioni: maggio-giugno 2013

PROGRAMMA

- Prerequisiti
 - Probability and random processes
 - Mathematical preliminaries for transforms, subbands, and wavelets
- Argomenti del corso
 - Introduzione
 - Mathematical preliminaries for lossless compression
 - Huffman coding
 - Arithmetic coding
 - Dictionary techniques
- Attività di laboratorio

MODULO D

Titolo: *Applied Information Security*

Docente: Pier Luigi Rotondo (IBM)

Contatto docente: pierluigi.rotondo@it.ibm.com

Periodo delle lezioni: settembre 2013

PROGRAMMA

- Lesson #1 Information Security
 - Course presentation
 - The current status of Information Security – Reports on vulnerabilities, current attacks and threats
 - Computer Security vs Information Security
 - Emerging threats
- Lesson #2 A sample industrial approach to Information Security - Identity Management
 - A sample framework – The IBM Security framework.
 - People security. Identity and Access management. Practical demonstration of a real Identity Management solution
 - Single Sign-on (SSO).
 - Identification and Authentication. Multiple factor authentication. Strong Authentication.
- Lesson #3 Application and Data security
 - Application security, web-application security. Main threats affecting webenabled applications.
 - Application testing. Source code analysis.
 - Practical demonstration of a real Web Application Vulnerability assessment
 - OWASP and their main projects.
 - Data security, Database security and Data masking.
- Lesson #4 Identity Management
 - Identification and Authentication. Multiple factor authentication. Strong Authentication.
 - Single Sign-on (SSO)
 - Practical demonstration of a real Identity Management solution
- Lesson #5 Security Intelligence. Cloud Security and Security as a Service.
 - Governance Risk and Compliance (GRC). Privacy.
 - Security Information and Event Management (SIEM). Demo of a real SIEM system to automatically check compliancy with set security policies.
 - Security Intelligence.
 - Cloud Security.
 - Security as a Service (SaaS)