

Since 2001, CNR IEIT represents a landmark institution for advanced scientific and technological research in the area of Information Engineering, covering fields of telecommunications, computer and systems engineering, applied electromagnetics, electronics, control, robotics and bioengineering.

CNR IEIT mission is to promote the impact of Information Engineering on society at the national and international level, by pursuing excellent long-term and interdisciplinary research and by committing to innovation, technology transfer and education.

The excellence in fundamental research, with a clear vision of its role and mission in “inventing the future”, is a grounding character of CNR IEIT, together with the never ending engagement into interdisciplinary research, as required by the ubiquitous presence of information technology into every scientific and technological domain.

CNR IEIT activities are based on the commitment to apply research and to transfer technology and knowledge, through international and national research projects, in networks involving other research partners and industries.

The geographical distribution of CNR IEIT in facilities across six main Italian regions (Piemonte, Lombardia, Liguria, Toscana, Emilia-Romagna, Veneto) brings to be a natural research reference center at local level for industries and institutions, providing the needed contribution in terms of research and development.



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Consiglio Nazionale delle Ricerche

Istituto di Elettronica e di
Ingegneria dell'Informazione
e delle Telecomunicazioni



Institute of Electronics
Computer and
Telecommunication Engineering

National Research Council



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CNR IEIT Research Groups

CNR IEIT scientific activities are performed by six Research Groups distributed in the six IEIT facilities, as shown in the following table. Groups are responsible, within their fields of pertinence, for identifying and coordinating research programs, in compliance with the general strategies of CNR IEIT.

	AEED	CEN	EHW	NS	SMC	WCS
TO						
MI						
GE						
BO						
PD						
PI						

AEED Applied Electromagnetics & Electronic Devices
 CEN Computer Engineering & Networks
 EHW Engineering for Health & Wellbeing
 NS Network Security
 SMC Systems Modeling & Control
 WCS Wireless Communication Systems

Applied Electromagnetics & Electronic Devices

- Electromagnetic field analysis
- Microwave and mm-wave antenna systems
- Waveguide passive components
- Frequency selective surfaces and dielectric radomes
- Radio-frequency measurements (up to 110 GHz)
- Radar measurements
- Tropospheric propagation
- Retrieval of atmospheric parameters
- Micro-nano electronic devices and MEMS
- Electronic circuits for sensor interfacing
- Noise study and measurement in electronic devices
- Power electronic converters and amplifiers
- Vertical cavity surface emitting lasers

Computer Engineering & Networks

- Industrial local area networks
- Communication protocols for automation
- Industrial Ethernet
- Fieldbuses. Hybrid (wired/wireless) networks
- Industrial communication systems
- Real-time communications for factory applications
- High-precision distributed clock synchronization
- Safe communications and safety protocols
- Security of industrial networks & critical infrastructures
- Real-time operating systems
- Embedded systems

Engineering for Health & Wellbeing

- Medical applications of electromagnetic fields EMF
- EMF exposure and risk assessment
- Cognitive system modeling
- Home computer interaction for rehabilitation
- Computer vision and image processing
- Bioreactors/artificial tissues for tissue engineering
- Intelligent caregiver robots
- Growing up robots
- Roboethics
- Biological system modeling
- Smart personalized hearing systems

Network Security

- Denial of Service attacks and Slow DoS Attacks
- Covert channels
- Internet of Things security
- Darknets security and investigation
- Malware and RAT development
- Attacks distribution (botnet)
- Intrusion Detection and Prevention Systems (IDS/IPS)
- Information and computer forensics (DFIR)
- Hacking techniques and penetration testing
- Network services and protocols
- Network monitoring
- Wireless (assessment, evaluation and testing)

Systems Modeling & Control

- Analysis and control of uncertain complex systems
- Randomized algorithms and probabilistic methods
- Systems modeling, identification and estimation
- Distributed robust optimization
- Dynamical social networks analysis
- Networked control systems
- Aeronautics and aerospace control
- Systems biology and bioinformatics
- Design of multivehicle systems
- Machine learning algorithms
- Parallel and distributed computing

Wireless Communication Systems

- Information theory and channel evaluation
- MIMO channel estimation and systems
- Wireless and wired channel modeling
- Phase noise channels
- Software Defined Radio algorithms
- Heterogeneous wireless networks
- Localization techniques for WSN
- Industrial wireless sensor networks
- Wireless cooperative networks
- Analysis of mobile data records
- Vehicular networks



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