



Institute of Communication and Computer Systems National Technical University of Athens

Computer Networks Laboratory

Lab Director: Professor Efstathios Sykas

Phone: +30 210 772 2528

Fax: +30 210 772 2530

Web: <http://www.iccs.gr/eng/>

e-mail: sykas@cn.ntua.gr

History

The **National Technical University of Athens (NTUA)** (est. 1837) is the oldest and most prestigious academic institute in Greece. Since its establishment, it has been contributing to the progress of the engineering science in Greece, through the education of young engineers and its multi-faceted research and development activities.

The **Institute of Communications and Computer Systems (ICCS)** was founded in 1989 as an independent institution closely associated with the School of Electrical and Computer Engineering of NTUA. Its mission is to host and promote high quality research in all fields relevant to electrical and computer engineering (i.e., communications, computers, networks, control, multimedia, expert systems, components, biomedical engineering, education and management, etc.). As such, it serves as an umbrella of a large number of R&D laboratories and activities.

The **Computer Networks Laboratory (CNL)** is a highly active R&D department of ICCS specialized in the design, development, testing and application of innovative ICT technologies in various fields of science and of everyday life.

Expertise

ICT in Transport - ICT in Green Cars: ICT and machine learning techniques applied for road traffic prediction, energy consumption prediction, efficient vehicle routing, as well as effective recharging strategies.

Service Engineering - Service Creation - Service Discovery: Development of multi-layered open system architectures for enabling the provision of community-based services to mobile and fixed end-users. Specification of Service Discovery Protocols.

Pervasive Networking - Ambient Intelligence: Development of mixed physical-digital environments saturated with computing and communication functionality, and seamlessly integrated with human user needs. Development of Personal Smart Spaces able to provide pervasiveness to users everywhere, continuously. Implementation of Virtual Home Environments.

Context-awareness: Contextual situation modeling. Active creation, delivery and management of efficient context-aware services.

Future Networks - Cognitive Radio - Mobile Communication Systems: Long tradition in the area of mobility. Cognitive radio test-beds, sensing functionality, innovative management and learning algorithms. Architectures and mechanisms for joint utilization of heterogeneous radio access technologies. QoS monitoring and evaluation.

Selected R&D Projects

EMERALD Energy management and recharging for efficient electric car driving

EcoGem Cooperative Advanced Driver Assistance System for Green Cars

SOCIETIES Self Orchestrating Community Ambient Intelligence Spaces

PERSIST Personal Self Improving Smart Spaces

MOTIVE Mobile Terminal Information Value added functionality

AmiGo Ambient Intelligence for the networked home environment

DAIDALOS I/II Designing Advanced Interfaces for the Delivery and Administration of Location independent Optimised personal Services - Phase I/II

CONTEXT Active creation, delivery and management of efficient context aware services

AVPACK Adoption and enhancement of open frameworks for converged Audio/Video provision to the home user

SMART-EC Support for mediation and brokering for electronic commerce

VESPER Virtual home environment for service personalisation and roaming users

“Bringing innovation into project proposals”

The Computer Networks Laboratory comprises more than 30 personnel members (Professors, post-doctoral researchers, post-graduate researchers, and administrative staff)

TEQUILA Traffic engineering for quality of service in the Internet at large scale

ANDROID Active network distributed open infrastructure development

MOICANE Multiple organisation interconnection for collaborative advanced network experiments

MOEBIUS Mobile extranet based integrated user services

FITNESS Fourth-generation Intelligent Transparent Networks Enhanced through Space-time Systems

CELLO Cellular network optimization based on mobile location

MONASIDRE Management of networks and services in a diversified radio environment

CREDO Composite radio and enhanced service delivery for the Olympics

MONTAGE Mobile Intelligent Agents in Accounting, Charging and Personal Mobility Support

DOLMEN Service Machine Development for an Open Long-term Mobile and Fixed Network Environment

Hardware - Infrastructure

- 40 SDR (Software-Defined-Radio) nodes forming a complete test-bed for deploying cognitive and SDR functionality
- **2G base station**
- Complete Wireless LAN test-bed with localization capabilities (Cisco)
- Multi-gigabit **GRID**-enabled infrastructure comprising multiple hosts including **BLADE** servers
- 20 **Android** devices exclusively for software testing and deployment
- Video conferencing facilities
- Various software tools