
Communication networks

Scientific bases

Contacts : François Baccelli (33 1 44 32 20 52, Francois.Baccelli@inria.fr) , Albert Benveniste (33 2 99 84 72 35 , Albert.Benveniste@inria.fr)

Themes: network modelling and control, traffic analysis and statistics, network monitoring and administration, coding and information theory, digital communication.

Research teams involved

- [ARMOR](#) (Rubino, Toutain) : Networks control
- PREVAL (Fayolle) : Modelling of random systems in networks
- MISTRAL (Nain) : Control and game theory
- RAP (Robert) : IP networks management algorithms
- [TREC](#) (Baccelli) : Network control modelling and theory
- [CODES](#) (Sendrier) : Coding and decoding – encryption - watermarking
- [DREAM](#) (Cordier) : Network monitoring
- FRACTALES (Lutton) : Multifractal traffic analysis
- [SIGMA2](#) (Legland) : Failure diagnosis in network management, Forward Error Correction codes and graphic models

Software infrastructures for networks

Contact : Jean-Bernard Stefani (Jean-Bernard.Stefani@inria.fr)

Topics : Software infrastructures to manage distributed systems, components, mobile embedded computing and protection

Research teams involved :

- ACES (M.Banatre) : operating systems for pocket computers in mobile environment
- [ARLES](#) (Issarny) : Software architectures for distributed systems, “ambient intelligence”
- [SARDES](#) (Stefani) : Distributed software infrastructure architecture for dynamical heterogeneous environments
- [RESEDAS](#) (Festor) : Software environments for the design and management of distributed applications and communication protocols - Evolution of protocols and networks
- [RESO](#) (Lefevre) : High performance active and programmable networks
- [VASY](#) (Garavel) : verification and testing tools for asynchronous parallel systems

Wireless communications

Contacts : François Baccelli (Francois.Baccelli@inria.fr), Philippe Jacquet (Philippe.Jacquet@inria.fr)

Topics : GPRS, UMTS, Bluetooth, WaveLan, 802.11, mobility management, multiple access, medium access control scheme, Ad hoc networking, ubiquitous computing

Research teams involved :

- ACES (M.Banatre) – ubiquitous computing : [spontaneous information systems](#), boundary between physical environments and digital space : contextual information systems
- [ARES](#) (Ubeda) : Deployment of services on Hertzian network architectures
- [HIPERCOM](#) (Jacquet) – Wireless Ad-hoc Networks
- [PLANETE](#) (Dabbous, Turletti) : Architecture for hierarchical management of mobility , hierarchical mobile IPv6 solution
- [PLANETE](#) (Castelluccia) : 802.11
- TREC (Baccelli) : Optimization of the CDMA covering process, power control

Internet

Contact : Walid Dabbous (Walid.Dabbous@inria.fr)

Topics : IPV6, multicast, Mobile IP, Congestion control (AQM mechanism), QoS, IP and multimedia, routing (G-MPLS), Peer to Peer

- Introductory text on « [Protocol analysis for future networks](#) » (2001 Annual report)

Research teams involved :

- [ARMOR](#) (Rubino, Toutain) : Internet protocols
- MISTRAL (Nain) : QoS in communication networks
- [PLANETE](#) (Dabbous, Turletti) : Internet quality of service support, mobile network support in IPv6, congestion control for Internet multimedia applications
- [TREC](#) (Baccelli) : analysis of flow and congestion control protocols

Optical components and networks

Contact : Albert Benveniste (Albert.Benveniste@inria.fr)

Topics : Cross-Connect Architecture, PMD Compensation, QoS Measurements

Research teams involved :

- [MASCOTTE](#) (Bermond) : Optical networks design : Dimensioning large networks while minimizing equipment costs
- [CONGE](#) (Sallet, Vivalda) : Dynamical PMD compensation in optical fibers
- SIGMA2 (Legland) : QoS monitoring and diagnosis in an optical network – BER (bit error rate) estimation in optical networks
- ESTIME : Numerical treatment of index profile in optical fibers
- MIAOU : Optical regeneration

Applications

Multimedia communications

Contact : Christine Guillemot (Christine.Guillemot@inria.fr)

Topics : speech recognition and synthesis, video processing, Human-Machine Dialogue, multiple data compression and watermarking

Research teams involved:

- [CORDIAL](#) (Miclet) : vocal and multimodal IHM
- METISS (Bimbot) : Processing sound signals, characterizing speakers
- [PAROLE](#) (Laprie) : speech recognition ; speech-text correspondence
- [TEMICS](#) (Guillemot) : Robust coding for video signal transmission over the Internet, watermarking,(?) video sequence segmentation
- [LANGUE ET DIALOGUE](#) (Romary) : natural language processing and Human-Machine Dialogue

Content processing, search and exploitation

Contact : Serge Abiteboul (Serge.Abiteboul@inria.fr)

Topics : Search engines, databases on the Web, Semantic Web, indexing, content processing

Research teams involved :

- [AXIS](#) (Trousse) : Usage directed design, analysis and improvement of information systems
- [VERSO](#) (Abiteboul) : "Intelligent" Web search and result exploitation aid
- [IMEDIA](#) (Boujemaa) : Indexing and search in large fixed image databases
- [TEXMEX](#) (Gros) : Exploitation (indexing, browsing & search) of large quantities of multimedia data
- [OPERA](#) (Quint) : Multimedia document production and exploitation tools

Software infrastructures for applications

Contact : Serge Abiteboul (Serge.Abiteboul@inria.fr)

Topics : XML, html,...., services & workflow

Research teams involved :

- [VERSO](#) (Abiteboul) : Integration of Web data and services - Collaboration between distributed clients – Peer to Peer
- Consortium [Objectweb](#) (Martin): Open Source middleware for the development of distributed applications
- [ECOQ](#) (Godart) : Collaboration portals supporting the work of multisynchronous editors

Web

[W3C](#) (World Wide Web Consortium) : The Web standards

Contact : Daniel Dardailler (Daniel.Dardailler@inria.fr)