

SCAN kick-off meeting



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URUGUAY

Instituto de Computación
Facultad de Ingeniería
Universidad de la República
Uruguay
INCO - FING – UdelaR

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General Information



UNIVERSIDAD
DE LA REPUBLICA
URUGUAY

- Universidad de la República (*University of the Republic*)
 - Only public university in Uruguay
 - Created in middle of XIX century
 - Organized in Faculties (schools)

- Instituto de Computación (*Computer Science Institute*)
 - Part of Engineering School
 - Installed in 1967
 - Closely related with PEDECIBA - Basic Science Development Program
 - About 3000 students

Computer Science Institute



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- Membership:
 - 160 teachers; 35% full-time, 65% partial
 - About 50% postgraduate
- Titulations
 - Computer Engineer (5 years)
 - Computer Engineering Master (2 years)
 - Computer Science Master (2 years)
 - Doctorate (3 years)
- Research groups
 - Computer Science foundations
 - Natural Language
 - Information Systems
 - Operational Research
 - High Performance Computing
 - MINA - Network Management, Artificial Intelligence

MINA Research Group

Network Management - Artificial Intelligence



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- Networking Management and technologies
 - Wired and wireless networks
 - Keywords:
 - Connectivity Provisioning, Performance, Routing, Traffic Engineering, Quality of Service, Convergence, Wireless Mesh Networks, Policies, *Autonomic Management*, Security....
 - Responsibles
 - Eduardo Grampín & Javier Baliosian

MINA Research Group

Network Management - Artificial Intelligence



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- Artificial Intelligence & Robotics
 - Keywords
 - Learning, *Embedded Systems*, Microcontrollers, Firmware, Vision, Sensors....
 - Sample applications
 - Robot Sumo and Football
 - Responsible
 - MSc. Gonzalo Tejera



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People at MINA

- 3 full-time professors
 - Lecturing and Research
- 3 part-time masters
 - Teaching
- ~10 part-time master students
- ~10 part-time teachers
- Most people work in the industry & teaching

- Big group, mostly dedicated to teaching, five years research experience

<http://www.fing.edu.uy/inco/grupos/mina/>

Teaching



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- Graduate courses
 - Computer Architecture
 - Computer Networking
 - Operating Systems
 - Embedded Systems
 - IA & Robotics
- Posgraduate courses
 - Networking research techniques
 - Quantitative assessment of computer systems
 - Wireless networking
 - Modelling and verification of embedded systems
 - Network Security



Ongoing projects

- RAN: Rural Ambient Networks, 2006-2008
 - Cooperation with rural communities and ONGs
 - Microsoft Research Digital Inclusion program funding
 - Objective: digital inclusion, help artisans' work and everyday life in isolated environment
 - Wireless Mesh Network prototype
 - *A Rule-based Distributed System for Self-optimization of Constrained Devices*
 - Policy-based, autonomous management framework
 - Heterogeneous technology service transparency: application of *Ambient Networks* concepts
 - Mobility/Handover management: SCTP-based prototype
- Followers, starting April 2009:
 - DEMOS: **D**omestic **E**nvironment **M**onitoring with **O**ppportunistic **S**ensor networks
 - ABRAN: **A**utonomic **B**ehaviour of low **R**esources control and communication devices, applied to rural **A**mbient **N**etworks

Ongoing projects



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- TE-LA: Traffic Engineering Strategies for Countries with Low Inter-Domain Connectivity
 - Spanish AECID-PCI funding, 2008, 2009 (ongoing)
 - Cooperation with Broadband Communications Research Group, CBA-DAC-UPC
 - Objective: characterize inter-domain connectivity problems in Latin American countries and propose global solutions with specific implementations
 - Tools: modeling, simulation, proposed testbed over CLARA academic interconnection LA-Europe
 - Based upon experience in Path Computation Element and Intelligent Route Control
 - Helping organizations:
 - LACNIC: Latin American and Caribbean Internet Addresses Registry
 - Cisco research
 - Liaisons: IRTF Routing Research Group / IETF LISP WG



Testing related activities

- IPv6
 - IP4JVM (Java-Native IPv6 protocol stack) (Ethernet, IPv6, ICMP, TCP, UDP, DHCPv6, NAT66,)
 - Interoperability Modeling and Automation
- TTCN-3
 - CoDec development and automation
 - Application of TTCN-3 to IPv6 core, IPsec, ...
 - TTCN-3 Open/Free compiler devel (go4it project)
- RAS Testing (Reliability Availability Safety)
 - Fault Injection Kernel for Linux (Iberoeka project)

A Rule-based Distributed System for Self-optimization of Constrained Devices



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