Miguel Diaz-Cacho Medina

Nationality: Spanish

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Date of birth: 06/08/1967

Gender: Male

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WORK EXPERIENCE

Associate Professor. Research, Development and Project Management
University of Vigo. School of Computer Engineering [15/02/2007 – Current]

Address: Vigo (Spain)

Full Time. Research and development in teleoperation, computer networks, VoIP, Internet.

University teaching in Computer Networks, Cibersecurity in Computer Networks, Industrial Networks, Cibersecurity in Industrial Environments, Computer Architectures, Distributed Systems, Computer Vision, among others.

Master teaching in Industrial Networks, Profibus, Profinet, EtherCat, FastTrack Switching, Cibersecurity in Industrial Environments.

Cisco CCNA teaching.

Build of a teleoperation and a telerobotics laboratory. Working with Linux, RTAI, Matlab/Simulink, embedded systems, robotic systems.

Build of a computer network, ICT security and a computer system laboratory. The network includes data and VoIP infrastructure.

Managed network includes servers in rack, more than 100 desktops interconected with other networks, industrial networks (EtherCat, Profibus, FastTrack switching). Embedded Real Time Systems with RTAI, Raspberry Pi, Arduino and others.

More than 50 ICT academic projects managed. 6 Enterprise projects managed. Participation in 5 research projects, in field of ICT, Networking and Telerobotics.

University teaching.

Associate Professor - Half time
University of Vigo. School of Computer Engineering [01/02/2001 – 15/02/2007]

Address: Vigo (Spain)

Computer networks and computer systems. Research and development. University teaching.

Teaching in Computer Networks, Network security and Computer Architecture.

Design, build and manage of computer networks, ICT security and computer system laboratory.

Computer systems analyst, Computer networks engineer.
Velneo S.A. [01/01/2006 – 15/03/2007]

Address: O Porriño, Vigo (Spain)

Development of Database programs, C/C++, assembler, Cisco, Linux, Unix. Relationship with customers and suppliers.

Datacenter maintenance, ICT security (firewall, IDS), network topology, configuration and maintenance.

Project Manager and main researcher in 2 Database projects:

- V7, a new multiplatform Database Model, with integrated development technology.

- Velneo V7 Database Model continuity.

Computer systems designer and analyst, Computer networks engineer
Visual Microsystems S.A. [14/06/2001 – 31/12/2005]

Address: O Porriño, Vigo (Spain)

Development of Database programs, C/C++, assembler, Cisco, Linux, Unix. Relationship with customers and suppliers.

Datacenter maintenance, ICT security (firewall, IDS), network topology and configuration.

Project Manager and main researcher in 2 ERP projects.

- Customer Relationship Manager (CRM) development to integrate databases and communications.

- Visual Process Suite (VPS). Integral Management System for Industrial Processes.

Computer systems analyst, Computer networks engineer
Fujitsu ICL [30/04/1999 – 22/04/2001]

Address: Santiago de Compostela (Spain)

Computer systems and computer networks and systems. Unix, Linux, Windows, Cisco, Cabletron, IBM.
Project Manager for the development of a data processing center, to serve as:
- Galician Library System. Server and communication system for public and University libraries from Galician region. The data center must support more than 30.000 users.
- Multimedia Center. Network Topology design and definition of equipment.

Computer systems analyst, Computer network engineer.
TROMOSA [01/05/1998 – 30/04/1999]

Address: Santiago de Compostela (Spain)

Computer networks and systems. Network security, firewall configuration and maintenance. SQL Server, Oracle and Informix Databases.

Visual C++, Visual Basic. Solaris and Windows NT Systems.

ISDN, Ethernet networks. TCP/IP, SNMP, SMTP-POP3-IMAP, HTTP, TELNET, SSH, FTP and more protocols.

Telecommunications engineer
Airtel Móvil S.A. (Now Vodafone España S.A.) [12/07/1997 – 31/12/1997]

Address: A Coruña (Spain)

Radio-FrequencyLocation of sites for mobile BTS.

Research and development department staff.
Bosch Telecom Gmbh [14/04/1997 – 11/07/1997]

Address: Ottobrun (Germany)
- **Business or sector**: Professional, scientific and technical activities

Work in Network research and security systems.
German-Spanish technical translator.

EDUCATION AND TRAINING

Telecommunication Engineer
University of Vigo [01/09/1989 – 27/03/1998]

Address: Vigo (Spain)
Field(s) of study: Engineering and engineering trades
National classification : ISCED 5

Telecommunication, Computer systems, Computer networks, Information Technology.

Telematics Engineering (Master - DEA)
Department of Telematics Engineering - University of Vigo [01/09/2004 – 01/09/2006]

Address: Vigo (Spain)
Field(s) of study: Computer networks, computer systems, telecommunications
National classification : ISCED 6

Telematic systems, network security, wireless networks, optical networks, advanced hardware/software architectures, intelligent systems, quality of service (QoS)

PhD (Doctor) in Systems Engineering and Automatisms by the University of Vigo
Universidad de Vigo. [15/02/2007 – 24/03/2011]

Address: Vigo (Spain)

Field(s) of study: Engineering and engineering trades

National classification : ISCED 6

Thesis Title: "Sistemas de teleoperación en redes con retardos: actuaciones sobre la red, protocolos y middleware" \ "Teleoperation systems in networks with delays: actions on the network, protocols and middleware" Systems Engineering and Automatisms, Industrial networks, Teleoperation, Networked Control Systems, Embedded Real Time Systems, RTAI.

Intercampus studentship
Universidad Federal de Goiás [17/07/1996 – 02/10/1996]

Address: Goiania (Brazil)

Field(s) of study: Engineering and engineering trades

National classification : ISCED 5

Computer networks, electronics, computer systems.

Cisco CCNA Exploration
Cisco Networking Academy - Fundació Universidad-Empresa de les Illes Balears [01/02/2010 – 31/07/2010]

Address: Palma de Mallorca (Spain)

Field(s) of study: Computer networks

Networking, Internet, Cisco equipment.

Professional stage in Networking
University of Monastir [15/06/2014 – 15/07/2014]

Address: Monastir (Tunisia)

Level in EQF : EQF level 5

Teaching in Networking, robotics and sistems

- Wireless networking

- Sensors and Actuators

Professional stage in Intervehicular Communications
Instituto Telecomunicaçoes - University of Aveiro [01/01/2017 – 31/05/2017]

Address: Aveiro (Portugal)

Researching in Inter-vehicular networks.

- 802.11p Wave communications.

- 3G/4G-5G Communications.

- Car-assisted overtaking use cases.

LANGUAGE SKILLS

Mother tongue(s):

Spanish

German

LISTENING: C2 **READING:** C2 **UNDERSTANDING:** C1

SPOKEN PRODUCTION: C1

SPOKEN INTERACTION: C1

French

LISTENING: C1 **READING:** C1 **UNDERSTANDING:** C1

SPOKEN PRODUCTION: C1

SPOKEN INTERACTION: C1

English

LISTENING: B2 **READING:** C1 **UNDERSTANDING:** B2

SPOKEN PRODUCTION: B2 **SPOKEN INTERACTION:** B2

Galician

LISTENING: C2 **READING:** C2 **UNDERSTANDING:** C2

SPOKEN PRODUCTION: C2

SPOKEN INTERACTION: C2

Portuguese

LISTENING: B2 **READING:** C1 **UNDERSTANDING:** B1

SPOKEN PRODUCTION: B2 **SPOKEN INTERACTION:** B2

PUBLICATIONS

Publications

Research experience in ICT. More than 60 JCR indexed publications and International Conferences. Some of them:

- Journal: IEEE/ASME Transactions on Mechatronics. 2012. DOI: 10.1109/TMECH.2012.2208758. "Generic approach to Stability under Time-varying delay in Teleoperation. Application to the Position-Error control of a Gantry Crane".

- Journal: Sensors. 2012. DOI: 10.3390/s121216591 "Network Adaptive Deadband: NCS Data Flow Control for Shared Networks.

- Journal: International Journal of Advanced Robotic Systems. 2013. DOI: 10.5772/56901. "GuideBot. A tour guide system based on mobile robots".

- Journal: Mathematical Problems in Engineering. 2015. Article ID 574874. DOI:10.1155/2015/574874. "Four-Channel Teleoperation with time-varying delays and Disturbance Observers."

- Journal: Sensors. 2017. DOI: 10.3390/s17020312 "Basic Send-on-Delta Sampling for Signal Tracking-Error Reduction".

- Journal: Robotics and Autonomous Systems. 2020. DOI: 10.1016/j.robot.2020.103569 "Obstacle avoidance in dynamic environments based on velocity space optimization"

- Conference: 18TH World Congress IFAC. 2011. Milano-Italy. "Stability of Teleoperation Systems under TimeVaryng Delays by using LYAPUNOV-KRASOVSKII Techniques".

- Conference: International Electric Vehicle Conference 2014. (IEVC 2014). "Wheel Slip Reset Controller in Automotive Brake Systems"

- Conference: 2017 3rd International Conference on Event-based Control, Communication, and Signal Processing (EBCCSP). "Send-on-delta sampling strategies for vehicle position tracking."

- Conference: 2018 IEEE 87th Vehicular Technology Conference (VTC Spring). "Vehicle-to-Vehicle Real-Time Video Transmission through IEEE 802.11p for Assisted-Driving"

- Conference: IECON 2019 - 45th Annual Conference of the IEEE Industrial Electronics Society. "Predictive distance-based Send-on-Delta in trajectory tracking under network constraints".

DRIVING LICENCE

Driving Licence: **B**

PROJECTS

Projects

National research projects in the University.

- DPI2007-66455-C02-02. "Sistemas de control basados en reset: aplicaciones en sistemas con retardos". Ministerio de Ciencia y Tecnología/Spanish Ministery of Science and Technology. 01/10/2007 – 03/08/2010.

- DPI2008-06738-C02-02. "Entorno de desarrollo de aplicaciones de robótica móvil. Aplicación a robots sociales en ámbitos hoteleros.". Ministerio de Ciencia y Tecnología/Spanish Ministery of Science and Technology. 01/01/2009 - 31/12/2011.

- 08DPI011303PR. "Teleoperación baseada en Control - Reset. Actuacións sobre a rede." Xunta de Galicia/ Galician Gouvernement. 29/04/2008 –31/10/2011.

- DPI2010-20466-C02-01. "Nuevas estrategias en control reseteado: herramientas de análisis y diseño, y aplicaciones". Ministerio de Ciencia y Tecnología/Spanish Ministery of Science and Technology. 01/05/2011 – 01/01/2015.

- DPI2013-47100-C2-2-P. "Sistemas de Control Híbridos Impulsivos: Fundamentos y Aplicaciones". Ministerio de Ciencia e Innovación./Spanish Ministery of Science and Innovation. 2014-2016.

- DPI2016-79278-C2-2-R. "Sistemas de Control Híbridos: aplicaciones en control de procesos y control vehicular." Ministerio de Economía y Competitividad/Spanish Ministery of Economics and Competitiveness. 2016-2018

National research projects in the Private Enterprise.

- IN841C2006/291-0. "V7. Novo modelo multiplataforma de sistema xestor de bases de datos con tecnoloxía de desenvolvemento integrada.". Xunta de Galicia/Galician Gouvernement. 01/09/2005 – 01/01/2008.- IDI20060610. "V7. NUEVO MODELO MULTIPLATAFORMA SGBD CON TECNOLOGIA DE DESARROLLO INTEGRADA". Centro para el desarrollo tecnológico e industrial (CDTI)-European Union. 01/09/2005 – 01/01/2008.

- ITC-20133057. "GPEC, Green Port Energy Container" 2013-2015.

- ITC-20133102. "Autoport". 2013-2015