

Carlos H. Gañán

Assistant professor

areas of expertise

Internet governance
Econometric modelling
Data mining/cleaning
Visual analytics
Machine learning
Cybersecurity

languages

Spanish ●●●●●●
Catalan ●●●●●●
English ●●●●○
German ●○○○○○

programming

Shell scripting
Java, C++, Python
ns3 & OMNeT++
R, Matlab, SQL, Python
L^AT_EX

personal details

Carlos H. Gañán
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DOB: 25/10/1984

Nationality: Spanish

education

- 2009–2013 **Ph.D.** in Information Security (*cum laude*) Technical University of Catalonia
- Research areas: decision making, cybersecurity, statistical modelling, data mining, economics of technology.
 - Dissertation title: *Certificate Status Information Dissemination and Validation for VANETs*
 - Advisor: Prof. José Muñoz Tapia
- 2010–2011 **Master** of Business Administration (*120 ECTS*) Open University of Catalonia
- Course topics: Econometrics, micro and macroeconomics, risk management, decision making, systems and operations management and strategic management and leadership.
- 2008–2010 **Bachelor** of Business Studies (*180 ECTS*) Open University of Catalonia
- Course topics: applied mathematics for business, principles of governance, principles of management, introduction to public administration.
- 2008–2009 **Master** in Telematics (*120 ECTS*) Technical University of Catalonia
- Research areas: networks, quality of service, computational technologies.
 - Dissertation title: *Scalable Multi-Source Video Streaming Application over Peer-to-Peer Networks*
 - Advisor: Prof. Jorge Mata
- 2002–2008 **Master** in Telecommunications (*300 ECTS*) Technical University of Catalonia
- Research areas: data mining, wireless sensor networks, energy management.
 - Dissertation title: *Energy Management Architecture for Wireless Sensor Networks*
 - Advisor: Thomas Falck

experience

- 2016–now **Delft University of Technology** Delft, Netherlands
Assistant Professor
Teaching at the Faculty of Transport, Policy and Management at the department of Multi-Actors systems. Main topics:
- Internet governance;
 - Mathematical modelling;
 - Big data analytics;
 - Economics of cybersecurity.
- 2014–20116 **Delft University of Technology** Delft, Netherlands
Postdoctoral Researcher
Research on various aspects related to Internet governance:
- Identifying the incentives and striking the right balance between cooperative and regulatory approaches to information sharing regarding incidents and vulnerabilities;
 - Investigating the opportunities and risks of information security markets;
 - Increasing the impact of voluntary action against cybercrime.
- 2009–2013 **Universitat Politècnica de Catalunya** Barcelona, Spain
Junior Researcher
Research on various aspects related to information security in wireless mobile networks (VANET and MANET). Detailed achievements:
- Analyzing the cost of security both in terms of quality of service and user experience in vehicular networks;
 - Enhancing privacy of security protocols for mobile networks;
 - Estimation of risk metrics based on security datasets.
- 2012–2012 **Middlesex University** London, United Kingdom
Visiting researcher
Carried out research on enhancing quality of service support capability of short range communications among vehicles. Detailed achievements:
- Simulation of vehicular networks in complex urban scenarios;
 - Analysis of the trade-off between secure communication and network usability.
- 2008-2009 **Universitat Politècnica de Catalunya** Barcelona, Spain
Research assistant/technician
Performing initial research on events detected by automation systems to assess impact, understand significance and categorize incidents. Recommending appropriate network addressing systems, appropriate layouts for various network configurations, and appropriate connection devices.
- 2007-2008 **Philips Research** Aachen, Germany
Intern Researcher
Detailed achievements:
- Use of machine learning techniques to analyze and extract patterns of vital signs data;
 - Design of a new hardware fully compatible to Philips proprietary sensor nodes.
- 2007-2007 **Hewlett Packard** Barcelona, Spain
Intern Researcher
Detailed achievements:
- Firmware design and optimization for large format printers;
 - Testing and design of paper and ink products.

awards

- 2016-2018 **Postdoctoral grant Beatriu de Pinós** 70k€
Prestigious scholarship with around 11% acceptance rate. Awarded by the Catalan Agency for Management of University and Research Grants.
- 2015 **Best dissertation award on ICT**
Awarded with the prestigious prize for the most outstanding doctoral thesis on the ICT field.
- 2011-2013 **FPU Postgraduate Scholarship** 65k€
Prestigious scholarship with around 5% acceptance rate. Awarded by the Secretary of Universities and Research of the Spanish government.
- 2009-2011 **FPI-UPC Research Scholarship** 30k€
Awarded by the Catalan Agency for Management of University and Research Grants.

participation in Research Projects

- 2015-2018 **Researcher** Department of Homeland Security & Netherlands Organisation for Research
Increasing the impact of voluntary action against cybercrime
- 2014-2017 **Work Package Leader** European Union's Seventh Framework Programme
E-CRIME (the economic impacts of cyber crime) FP7 Project
- 2012-2014 **Researcher** Spanish Ministry of Science and Education
SERVET (A SEcure and Robust transport architecture for infotainment services in Vehicular nETworks) project
- 2009-2014 **Associate Researcher** European Science Foundation
Action IC0906: Wireless Networking for Moving Objects (WiNeMO)
- 2008-2013 **Work Package Leader** Ingenio Program 2010
ARES Project (Advanced Research on Information Security and Privacy) – CONSOLIDER CSD2007-00004)
- 2007-2009 **Intern** German Federal Ministry for economics and labor
BASUMA (Body Area System for Ubiquitous Multimedia Applications)

publications

- 38 peer-reviewed publications:
 - 12 peer-reviewed international journal publications;
 - 17 peer-reviewed full paper conference contributions;
 - 1 peer-reviewed book chapter;
 - 8 publications in Spanish scholarly and professional journals.

articles in peer-reviewed journals

Abuse Reporting and the Fight Against Cybercrime

Jhaveri, Mohammad Hanif, Orcun Cetin, Carlos Gañán, Tyler Moore, and Michel Van Eeten

ACM Comput. Surv. 49.4 (Jan. 2017) 68:1–68:27. ACM, 2017

Understanding the role of sender reputation in abuse reporting and cleanup

Cetin, Orcun, Mohammad Hanif Jhaveri, Carlos Gañán, Michel van Eeten, and Tyler Moore

Journal of Cybersecurity 2.1 (2016) p. 83. 2016

A model for revocation forecasting in public-key infrastructures

Gañán, Carlos, Jorge Mata-Díaz, Jose L. Muñoz, Oscar Esparza, and Juanjo Alins

Knowl. Inf. Syst. 43.2 (2015) pp. 311–331. 2015, IF: 2.639

Certificate Revocation List Distribution System for the KAD Network

Caubet, Juan, Carlos Gañán, Oscar Esparza, Jose Muñoz, Jorge Mata, and Juanjo Alins

Comput. J. 57.2 (2014) pp. 273–280. 2014, IF: 0.888

EPA: An efficient and privacy-aware revocation mechanism for vehicular ad hoc networks

Gañán, Carlos, Jose L. Muñoz, Oscar Esparza, Jorge Mata-Díaz, and Juanjo Alins

Pervasive and Mobile Computing (2014) pp. 1–17. 2014, IF: 2.079

VESPA: Emulating Infotainment Applications in Vehicular Networks

Rene, Sergi, Juanjo Alins, Jorge Mata, Carlos Gañán, Jose Muñoz, and Oscar Esparza

IEEE Pervasive Computing 13.3 (2014) pp. 58–66. 2014, IF: 2.103

BECSI: Bandwidth efficient certificate status information distribution mechanism for VANETs

Gañán, Carlos, Jose L. Muñoz, Oscar Esparza, Jonathan Loo, Jorge Mata-Díaz, and Juanjo Alins

Mobile Information Systems (2013) pp. 1–31. 2013, IF: 1.789

PPREM: Privacy Preserving REvocation Mechanism for Vehicular Ad Hoc Networks

Gañán, Carlos, Jose L. Muñoz, Oscar Esparza, Jorge Mata-Díaz, and Juanjo Alins

Computer Standards & Interfaces (Aug. 2013) pp. 1–12. Elsevier B.V., 2013, IF: 1.177

COACH: COLlaborative certificate stAtus CHecking mechanism for VANETs

Gañán, Carlos, Jose L. Muñoz, Oscar Esparza, Jorge Mata-Díaz, Juan Hernández, and Juanjo Alins

Journal of Network and Computer Applications 36.5 (Sept. 2013) pp. 1337–1351. 2013, IF: 1.772

A Modeling of Certificate Revocation and Its Application to Synthesis of Revocation Traces

Gañán, Carlos, Jorge Mata-Díaz, Jose L. Muñoz, Juan Hernández, Oscar Esparza, and Juanjo Alins

IEEE Transactions on Information Forensics and Security 7.6 (Dec. 2012) pp. 1673–1686. 2012, IF: 1.895

Risk-based decision making for Public Key Infrastructure using fuzzy logic

Gañán, Carlos, Jose L. Muñoz, Oscar Esparza, Jorge Mata-Díaz, and Juanjo Alins

International Journal of Innovative Computing, Information and Control (IJICIC) 8.11 (2012) pp. 7925–7942. 2012, IF: 1.667

Low-cost group rekeying for unattended wireless sensor networks

Hernández, Juan, Juan Vera-del-Campo, Josep Pegueroles, and Carlos Gañán

Wireless Networks 19 (May 2012) pp. 47–67. 2012, IF: 1.055

international peer-reviewed conferences/proceedings

Risk Management for Third Party Payment Networks

Driel Carlos Gañán, Willem van, Michael Lobbezoo, Michel van Eeten, and Tyler Moore

15th Annual Workshop on Economics of Information Security (WEIS) 2016, 2016, hi5: 26

Who gets the boot? Analyzing victimization by DDoS-as-a-service

Noroozian, Arman, Maciej Korczyński, Carlos Hernandez Gañan, Daisuke Makita, Katsunari Yoshioka, and Michel van Eeten

International Symposium on Research in Attacks, Intrusions, and Defenses, 2016

Estimating the costs of consumer-facing cybercrime: A tailored instrument and representative data for six EU countries

Riek, Markus, Rainer Böhme, Michael Ciere, Carlos Gañán, Michel van Eeten, and Tyler Moore

15th Annual Workshop on Economics of Information Security (WEIS) 2016, 2016

Apples, Oranges and Hosting Providers: Heterogeneity and Security in the Hosting Market

Tajalizadehkhoob, Samaneh, Maciej Korczyński, Arman Noroozian, Carlos Gañán, and Michel van Eeten

IEEE/IFIP Network Operations and Management Symposium, NOMS 2016, 2016, hi5: 22

Understanding the Role of Sender Reputation in Abuse Reporting and Cleanup

Cetin, Orcun, Mohammad Hanif Jhaveri, Carlos Gañán, Michel van Eeten, and Tyler Moore

14th Annual Workshop on Economics of Information Security (WEIS) 2015, 2015, hi5: 26

An empirical analysis of ZeuS C&C lifetime

Gañán, Carlos, Orcun Cetin, and Michel van Eeten

10th ACM Symposium on Information, Computer and Communications Security, 2015, Singapore, hi5: 32

How Dynamic is the ISPs Address Space? Towards Internet-Wide DHCP Churn Estimation

Moura, Giovane, Carlos Gañán, Qasim Lone, Payam Poursaied, Hadi Asghari, and Michel van Eeten

14th IFIP Networking Conference, 2015, Toulouse, France, hi5: 22

Why Them? Extracting Intelligence about Target Selection from Zeus Financial Malware

Tajalizadehkhoob, Samaneh, Hadi Asghari, Carlos Gañán, and Michel van Eeten

13th Annual Workshop on Economics of Information Security (WEIS) 2014, 2014, hi5: 26

Secure Handoffs for V2I Communications in 802.11 Networks

Gañán, Carlos, Sergi Reñé, Jose Muñoz, Oscar Esparza, Jorge Mata, and Juanjo Alins

10th ACM symposium on Performance evaluation of WSN, 2013, Barcelona, Spain, hi5: 21

Analysis of Inter-RSU Beaconing Interference in VANETs

Gañán, Carlos, Jonathan Loo, Arindam Ghosh, Oscar Esparza, Sergi Reñé, and Jose L. Muñoz

Multiple Access Communications, 2012, Dublin, Ireland, hi5: 13

On the Self-similarity Nature of the Revocation Data

Gañán, Carlos, Jorge Mata-Díaz, Jose L. Muñoz, Oscar Esparza, and Juanjo Alins

Information Security, 2012, Passau, Germany, hi5: 35

Impact of the Revocation Service in PKI Prices

Gañán, Carlos, Jose L. Muñoz, Oscar Esparza, Jorge Mata-Díaz, and Juanjo Alins

Information and Communications Security, 2012, Hong Kong, hi5: 33

Toward Revocation Data Handling Efficiency in VANETs

Gañán, Carlos, Jose L. Muñoz, Oscar Esparza, Jorge Mata-Díaz, and Juanjo Alins

Communication Technologies for Vehicles, 2012, Vilnius, Lithuania, hi5: 16

RAR: Risk Aware Revocation Mechanism for Vehicular Networks

Gañán, Carlos, Jose L. Muñoz, Oscar Esparza, Jorge Mata-Díaz, Juanjo Alins, Carlos Silva-Cardenas, and Gumercindo Bartra-Gardini

2012 IEEE 75th Vehicular Technology Conference (VTC Spring), 2012, Yokohama, Japan, hi5: 90

- NeuroCast: Adaptive Multi-source P2P Video Streaming Application for Wireless Networks
Gañán, Carlos, Juan Caubet, Sergi Reñé, Jorge Mata-Díaz, Juanjo Alins, and Óscar Esparza
Wired/Wireless Internet Communications, 2011, Vilanova i la Geltrú, Spain, hi5: 15
- Analysis of Video Streaming Performance in Vehicular Networks
Reñé, Sergi, Carlos Gañán, Juan Caubet, Juanjo Alins, Jorge Mata-Díaz, and Jose L. Muñoz
INFOCOMP, 2011, Sant Joan d'Espí, Spain, hi5: 5
- PKIX Certificate Status in Hybrid MANETs
Muñoz, Jose L., Oscar Esparza, Carlos Gañán, and Javier Parra-Arnau
Ifip International Federation For Information Processing, 2009, Brussels, Belgium, hi5: 14

local peer-reviewed conferences/proceedings

- CRL Issuing Mechanism for the KAD Network
Caubet, Juan, Carlos Gañán, Oscar Esparza, and Jose L. Muñoz
Jitel 2013 - IX Jornadas de Ingeniería Telemática, 2013
- Impacto de las unidades a pie de carretera en las interferencias en redes vehiculares
Gañán, Carlos, Sergi Reñé, Jorge Mata-Díaz, and Juanjo Alins
Jitel 2013 - IX Jornadas de Ingeniería Telemática, 2013
- Estructuras de datos autenticadas para gestionar datos de revocación en VANETs
Gañán, Carlos, Jose L. Muñoz, M. F. Hinarejos, A. Isern, and Juanjo Alins
RECSI 2012 - XII Reunión Española sobre Criptología y Seguridad de la Información, 2012
- Gestión del riesgo inherente en la revocación de certificados de redes vehiculares
Gañán, Carlos, Jose L. Muñoz, M. F. Hinarejos, A. Isern, and Juanjo Alins
RECSI 2012 - XII Reunión Española sobre Criptología y Seguridad de la Información, 2012
- Un Esquema de Pago Seguro mediante Multicupones para Escenarios Multi-Comerciante
Isern, A., M. F. Hinarejos, J. Ferrer, M. Palleras, Carlos Gañán, J. L. Muñoz, Jordi Forné, and Oscar Esparza
RECSI 2012 - XII Reunión Española sobre Criptología y Seguridad de la Información, 2012
- Aplicación adaptativa multi-fuente para streaming de vídeo en redes P2P inalámbricas
Caubet, Juan, Carlos Gañán, Sergi Reñé, Juanjo Alins, and Jorge Mata-Díaz
Jitel 2011 - VIII Jornadas de Ingeniería Telemática, 2011
- Mecanismo para evitar ataques por confabulación basados en code passing
Jaímez, Marc, Oscar Esparza, Carlos Gañán, and Jarvier Parra-Arnau
Jitel 2009 - VII Jornadas de Ingeniería Telemática, 2009
- Nuevo criterio para la estimación de información de estado de certificados en MANET
Muñoz, Jose L., Jarvier Parra-Arnau, Carlos Gañán, and Marc Jaímez
Jitel 2009 - VII Jornadas de Ingeniería Telemática, 2009

book chapters

- Muñoz, Jose L., Oscar Esparza, Carlos Gañán, Jorge Mata-Díaz, Juanjo Alins, and Ivan Ganchev.
“MHT-Based Mechanism for Certificate Revocation in VANETs”. English. In: *Wireless Networking for Moving Objects*. Ed. by Ivan Ganchev, Marília Curado, and Andreas Kassler. Vol. 8611. Lecture Notes in Computer Science. Springer International Publishing, 2014, pp. 282–300. ISBN: 978-3-319-10833-9.

thesis

- Certificate Status Information Distribution and Validation in vehicular networks
Gañán, Carlos, Doctoral Dissertation, Univesitat Politècnica de Catalunya, 2013
- Scalable Multi-Sourcer Video Streaming Application over P2P networks
Gañán, Carlos, Master's Thesis, Univesitat Politècnica de Catalunya, Sept. 2009

teaching experience

- 2016-2017 **Mathematical models and society** Delft University of Technology
Course manager and Lecturer
M.Sc. course, (5 ECTS; +/- 90 students)
Responsibilities:
- Lecturing the whole course;
 - Coordinating with the other co-lecturers;
 - Grading and giving feedback to the students.
- 2016 **Cyber Security Economics** Massive Open Online Course
Course manager and Lecturer
MSc Level (+/- 3,000 students)
Responsibilities:
- Teaching, managing and developing course contents;
 - Producing video lectures;
 - Assisting other partner institutions (Cambridge, Muenster and Southern Methodist University) with the development of the video lectures;
 - Coordinating with the student assistants;
 - Acting as first point of contact with the course participants.
- 2015-2016 **Cyber Security: Economics and Insurance** Leiden University
Course manager and Lecturer
M.Sc. course, (5 ECTS; +/- 20 students)
Responsibilities:
- Course content development;
 - Lecturing the whole course;
 - Preparing the assignments;
 - Grading and giving feedback to the students.
- 2015-2016 **Economics of Security** 3TU Master (TU Delft, Twente University)
Course manager and Lecturer
M.Sc. course, (5 ECTS; +/- 40 students)
Responsibilities:
- Course content development;
 - Integrating the course materials in an instructional online platform to enhance pedagogical technique;
 - Planning lessons and assignments;
 - Design of the course data analytics projects;
 - Leading group discussions and graded their assignments.
- 2015 **Economics of Cybersecurity** Professional Online Education Course
Course manager and Lecturer
MSc/PhD-level (+/- 400 students)
Responsibilities:
- Teaching, managing and developing course contents;
 - Producing video lectures;
 - Assisting other partner institutions (Cambridge, Muenster and Southern Methodist University) with the development of the video lectures;
 - Coordinating the course with edX and TU Delft's extension school;
 - Acting as first point of contact with the course participants.

- 2012-2013 **Internet Transport, Control and Management** Technical University of Catalonia
Assistant Lecturer
 B.Sc. level, (+/- 100 students) *Responsibilities:*
- Developing part of the course materials;
 - Teaching on campus master classes;
 - Conducting laboratory sessions;
 - Planning all assignments and in-class exercises;
 - Managing student concerns, grading exams, holding office hours and extra review sessions.
- 2012-2013 **Linux Networks** Technical University of Catalonia
Lecturer
 M.Sc. level, (+/- 40 students). *Responsibilities:*
- Helping create curriculum;
 - Composing exams and assignments;
 - Leading weekly discussion sessions;
 - Grading all written work and determining final grades.

professional activities

Reviewer

- Journal of Information Policy
- IEEE Transactions on Information Forensics and Security- Journal
- Computer Communications - Journal - Elsevier
- Ad Hoc Networks - Journal - Elsevier
- Journal of Network and Computer Applications - Elsevier
- IET Information Security - Journal
- IEEE Vehicular Technology Conference
- IEEE Transactions on Mobile Computing - Journal

Program committee

- IEEE Globecom 2015 – Security Symposium
- ACM AsiaCCS 2016 – Workshop on Traffic Measurements for Cybersecurity
- ComTel 2012,2013,2014,2015,2016 – International Congress on computing and telecommunications

Organizer

- Workshop on the Economics of Information Security (WEIS) 2015
- International Conference on Information and Communications (ICICS) 2010