

CURRICULUM VITAE

JOSÉ ALBERTO HERNÁNDEZ

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1 Personal Information

1.1 Contact details

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1.2 Short Biography

José Alberto Hernández completed the five-year degree in Telecommunications Engineering at Universidad Carlos III de Madrid (Madrid, Spain) in 2002, and the Ph.D. degree in Computer Science at Loughborough University (Leics, United Kingdom) in 2005. From 2005 to 2009, he was a postdoctoral researcher and teaching assistant at Universidad Autónoma de Madrid. In 2009, he moved to Universidad Carlos III de Madrid, where he became an associate professor. Dr. Hernández accumulates more than 10 years of teaching experience in areas related with Computer Networks, Computer Communications, Queueing Theory and Optical WDM Networks; and has supervised 4 Ph.D. theses.



Dr. Hernández has participated in a number of both national and european research projects concerning the modeling and performance evaluation of optical WDM networks, next-generation access networks, network energy efficiency, and optical transport for 5G mobile networks. Some of these projects are: e-Photon/ONE+, BONE, 5G-Crosshaul, DIOR, T2C2, CRAMnet, Medianet, TIGRE5-CM, etc. He has published more than 80 articles in both journals and conference in-proceedings on such subjects, including IEEE Communications Magazine, IEEE Network, IEEE Internet Computing, IEEE JSAC, Journal of Lightwave Technology, Journal of Optical Communications and Networking, etc. Dr. Hernández has also served as reviewer in many of the aforementioned journals.

Research Topics and Keywords:

- Computer networks: Analysis of network performance and queueing theory; network optimization and dimensioning techniques; optical WDM networks; Energy Efficiency; optical backhaul for 5G; next-generation optical access.
- Big Data Analytics: Machine Learning, NoSQL databases; Map-Reduce; R and Python; Spark.

2 Education

2.1 Studies

(1996-02) MEng. Telecommunications, Universidad Carlos III de Madrid, Spain

(2002-05) Ph.D. Computer Science, Loughborough University, United Kingdom.

Doctoral thesis: “Methods for modelling and simulating network delays at coarse time-scales” successfully defended in June 2005.

2.2 Languages

- Spanish. Mother Tongue.
- English. Fluent.

3 Teaching experience

3.1 Positions

- 2002 - 05 Lab assistant, Dept. Computer Science at Loughborough University, United Kingdom.
- 2005 - 06 Part-time Lecturer, Dept. Computer Science at Univ. Antonio de Nebrija, Madrid, Spain.
- 2006 - 09 Assistant Lecturer, Dept. Computer Science at Universidad Autónoma de Madrid, Spain.
- 2009 - 10 Visiting Lecturer, Dept. Telematic Engineering, Universidad Carlos III de Madrid, Spain.
- 2010 - Senior Lecturer, Dept. Telematic Engineering, Universidad Carlos III de Madrid, Spain.

3.2 Teaching experience

3.3 Academic books

- J. A. Hernández, P. Serrano: “Probabilistic models for computer networks: Tools and solved problems”, 192 pages, Ed. Lulu.com, 2015.
ISBN: 978-1-291-54-687-3
URL: <http://www.amazon.com/Probabilistic-models-computer-networks-problems/dp/1291546871>

3.4 Teaching activities (both undergraduate and postgraduate)

- As a Senior Lecturer in the Department of Telematic Engineering at Universidad Carlos III de Madrid, I have taught the following courses:
 - Master in Telematic Engineering (lectures in English):
 - Broadband networks 2 (academic years 2009/10, 2010/11, 2011/12).
About 15 hours per year.
Contents: Introduction to optical WDM systems, Passive Optical Networks, Optical networks in the MAN and WAN, IP/MPLS, Metro-Ethernet, Energy Efficiency in Ethernet.
URL: Surveys: 4.67/5.
 - Performance evaluation of networks (academic years 2012/13, 2013/14, 2014/15, 2015/16).
About 15 hours per year.
Contents: Probability review, Poisson processes, Discrete Time Markov Chains and Continuous-Time Markov Chains, Classical Queueing Theory, Applications to the modelling of Computer Systems.
URL: http://www3.uc3m.es/reina/Fichas/Idioma_2/264.16149.html
Surveys: 4.43/5, 4.75/5 and 4.87/5.
 - Network complexity analysis (academic years 2012/13, 2013/14, 2014/15, 2015/16).
About 15 hours per year.
Contents: Review of Counting techniques, Graph Theory, Analysis of large networks, Bipartite graphs, Network flows, Complexity of algorithms, Optimisation techniques.
URL: http://www3.uc3m.es/reina/Fichas/Idioma_2/264.16148.html
Surveys: 5/5 and 4.63/5.

- Simulation of networks and telematic applications (academic years 2013/14, 2014/15).
About 8 hours per year. Contents: Introduction to simulation, Discrete-event simulation, Simulation with OMNET++, analysis of results with R.
URL: http://www3.uc3m.es/reina/Fichas/Idioma_2/264.16141.html
Surveys: 4.83/5.
- o Master in Telecommunication Engineering (lectures in Spanish):
 - Optical networks (academic years 2012/13, 2013/14, 2015/16).
About 20 hours per year.
Contents: Introduction to optical WDM systems, Passive Optical Networks, Optical networks in the MAN and WAN, OTN, IP/MPLS, Network resilience, Control and management plane, Metro-Ethernet and MPLS-TP, Data center networks.
URL: http://www3.uc3m.es/reina/Fichas/Idioma_2/227.15934.html
Surveys: 5/5
- o Bachelor's degree in Telematic Engineering (mostly English):
 - Theory of networks (academic years 2009/10, 2010/11, 2011/12, 2012/13, 2013/14, 2014/15, 2015/16).
About 60 hours per year. Contents: Probability review, Poisson processes, Discrete Time Markov Chains and Continuous-Time Markov Chains, Classical Queueing Theory, Applications to the modelling of Computer Systems.
URL: http://www3.uc3m.es/reina/Fichas/Idioma_2/215.13417.html
Surveys: 4/5, 4.4/5, 4.75/5, 3.5/5, 4/5, 4.4/5, 4.6/5 and 4.25.
- As an Assistant Lecturer in the Department of Computer Science at Universidad Autónoma de Madrid, I have taught the following courses:
 - o Bachelor's Degree in Telecommunication Engineering:
 - Telecommunication Systems (academic year 2008/09)
About 30 hours per year.
Contents: Introduction to transport technologies. Sonet/SDH and OTN. MPLS, MPLS-TE and VPNs. Quality of Service.
Surveys: 3.5/5.
 - o Bachelor's Degree in Telecommunication Engineering:
 - Computer networks I (academic year 2007/08, 2008/09)
About 40 hours per year
Contents: Introduction to computer networks. TCP/IP and OSI network models. Introduction to the physical layer. Modulations and multiplexing. Wired and wireless media. Introduction to the link layer. Transmission errors: detection and correction. Media Access Control. Ethernet. WiFi.
Surveys: 3/5
 - Computer networks II (academic year 2006/07, 2007/08, 2008/09)
About 60 hours per year
Contents: Introduction to the network layer: IP. IP addressing and subnetting. Routing algorithms: inter- and intra-domain. ICMP, ARP and DHCP. Introduction to the transport layer: UDP and TCP. Flow control and congestion control.

The application layer: DNS, HTTP, SNMP.

Surveys: 6.4/7, 6.2/7, 6.67/7, 6.5/7

- Master's Degree in Computer and Communications Engineering:
 - Performance evaluation of networks (academic years 2007/08, 2008/09)
About 30 hours per year
Contents: Probability review, Poisson processes, Continuous-Time Markov Chains, Classical Queueing Theory, Applications to the modelling of Computer Systems.
- As an external lecturer at Universidad Antonio de Nebrija, I have taught the following courses:
 - Bachelor's Degree in Computer Science:
 - Introduction to Telecommunications (academic year 2005/06)
About 60 hours per year
Contents: Information and communications. Wired and wireless transmission systems. Signal processing. Digital communications and coding. Modulation and Multiplexing.
Surveys: 5.66/7
 - Computer networks II (academic year 2005/06)
About 120 hours per year
Contents: Introduction to the network layer: IP. IP addressing and subnetting. Routing algorithms: inter- and intra-domain. ICMP, ARP and DHCP. Introduction to the transport layer: UDP and TCP. Flow control and congestion control. The application layer: DNS, HTTP, SNMP.
Surveys: 5.7/7
 - Computer networks III (academic year 2005/06)
About 60 hours per year
Contents: Network config and management in Linux and Windows: users, network and routing, daemons and network services, firewall and iptables, NFS, web, email and ftp services.
Surveys: 5.3/7
- As an assistant lecturer at Loughborough University, I have taught the following courses:
 - Bachelor's Degree in Computer Science:
 - Programming I (academic year 2003/04)
About 36 hours per year
Contents: Programming labs with Visual Basic.
 - From networks to the Internet (academic year 2003/04, 2004/05)
About 8 hours per year
Contents: Programming lab on Java sockets.
 - Operating systems, networks and the Internet (academic year 2004/05)
About 5 hours per year

Contents: Programming lab on networking with Java.

4 Research experience

4.1 Book chapters

1. G. Rodríguez de los Santos, J. A. Hernández, M. Urueña, A. Muñoz: “A Bloom filter-based monitoring station for a Lawful Interception Platform”.
Communications in Computer and Information Science, vol. 429, pp. 214–228, Springer 2014.
ISBN: 978-3-319-07568-6
DOI: http://dx.doi.org/10.1007/978-3-319-07569-3_18
2. A. García, J. Sánchez, V. Sánchez, J. A. Hernández: “Integration of a regular application into a user interface adaptation engine in the MyUI project”
Lecture Notes in Computer Science, vol. 7382, pp. 311–314, Springer 2012.
ISBN: 978-3-642-31521-3
DOI: http://dx.doi.org/10.1007/978-3-642-31522-0_46
3. C. Gacimartín, J. A. Hernández, D. Larrabeiti: “A middleware architecture for designing TV-based adapted applications for the elderly”.
Lecture Notes in Computer Science, vol. 6761, pp. 443–449, Springer 2011.
ISBN: 978-3-642-21601-5
DOI: http://dx.doi.org/10.1007/978-3-642-21602-2_48
4. J. A. Hernández, V. López: “Optical Burst Switching”, chapter 4, pp. 87–130.
Book: “Enabling Optical Internet with advanced network technologies”, Eds. Javier Aracil y Franco Callegatti. Springer, July 2009.
ISBN: 978-1-84882-277-1
DOI: <http://dx.doi.org/10.1007/978-1-84882-278-8>
5. J. A. Hernández, J. Aracil: “On the early release of Burst-Control Packets in Optical Burst-Switched networks”.
Lecture Notes in Computer Science, vol. 5200, pp. 31–40. Springer, 2008.
ISBN: 978-3-540-89523-7
DOI: http://dx.doi.org/10.1007/978-3-540-89524-4_4
6. J. L. García-Dorado, J. Aracil, J. A. Hernández, S. López-Buedo, J. E. López de Vergara, P. Reviriego, G. Huecas, S. Pavón, J. Quemada: “A Quality of Service assessment technique for large-scale management of multimedia flows”.
Lecture Notes in Computer Science, vol. 4787, pp. 173–176, Springer 2007.
ISBN: 978-3-540-75868-6
DOI: http://dx.doi.org/10.1007/978-3-540-75869-3_15
7. V. López, J. A. Hernández, J. Aracil, J. P. Fernández-Palacios, Ó. González de Dios: “A Bayesian decision theory approach for the techno-economic analysis of an all-optical router”.
Lecture Notes in Computer Science, vol. 4534, pp. 428–437, Springer, 2007.
ISBN: 978-3-540-72729-3
DOI: http://dx.doi.org/10.1007/978-3-540-72731-6_46

4.2 Articles in journals and magazines

1. F. Cavaliere, P. Iovanna, J. Mangues-Bafalluy, J. Baranda, J. Núñez-Martínez, K.-Y. Lin, H.-W. Chang, P. Chanclou, P. Farkas, J. Gomes, L. Cominardi, A. Mourad, A. de la Oliva, J. A. Hernández, D. Larrabeiti, A. Di Giglio, A. Paolicelli, P. Odling: “Towards a unified

- fronthaul-backhaul data plane for 5G, the 5G-Crosshaul project approach, *Elsevier Computer Standards and Interfaces*, vol. 51, pp. 56–62 (March 2017).
DOI: <http://dx.doi.org/10.1016/j.csi.2016.11.005>
JCR Q2, Impact Factor: 1.268 (position 35/106 in Computer Science, Software Engineering, year 2015).
2. J. A. Hernández, R. Sánchez, D. Larrabeiti: “Oversubscription dimensioning of Next-Generation PONs with different service levels”, *IEEE Communications Letters*, vol. 20, no. 7, pp. 1341–1344 (July 2016).
DOI: <http://dx.doi.org/10.1109/LCOMM.2016.2558155>
JCR Q2, Impact Factor: 1.291 (position 35/82 in Telecommunications, year 2015).
 3. R. Sánchez, J. A. Hernández, D. Larrabeiti: “Network planning for dual residential-business exploitation of Next-Generation Passive Optical Networks to Provide Symmetrical 1 Gb/s Services”, *IEEE/OSA J. Optical Communications and Networking*, vol. 8, no. 4, pp. 249–262 (April 2016).
DOI: <http://dx.doi.org/10.1364/JOCN.8.000249>
JCR Q1, Impact Factor: 2.183 (position 16/82 in Telecommunications, year 2015).
 4. R. Sánchez, J. A. Hernández, J. Montalvo García, D. Larrabeiti: “Provisioning 1 Gb/s Symmetrical Services with Next-Generation Passive Optical Network (NG-PON) Technologies”, *IEEE Communications Magazine*, vol. 54, no. 2, pp. 72–77 (Feb. 2016).
DOI: <http://10.1109/MCOM.2016.7402264>
JCR Q1, Impact Factor: 5.125 (position 2/82 in Telecommunications, year 2015).
 5. A. de la Oliva, J. A. Hernández, D. Larrabeiti, A. Azcorra: “An overview of the CPRI specification and its application to C-RAN based LTE scenarios”, *IEEE Communications Magazine*, vol. 54, no. 2, pp. 152–159 (Feb. 2016).
DOI: <http://dx.doi.org/10.1109/MCOM.2016.7402275>
JCR Q1, Impact Factor: 5.125 (position 2/82 in Telecommunications, year 2015).
 6. J. Domzal, R. Wojcik, A. Jajszczyk, P. M. Santiago del Río, J. A. Hernández, J. Aracil: “P-Cycle configuration possibilities over DRDA networks”, *Transactions on Emerging Telecommunications Technologies*, vol. 26, no. 8, pp. 1086–1095 (August 2015).
DOI: <http://dx.doi.org/10.1002/ett.2813>
JCR Q2, Impact Factor: 1.295 (position 33/82 in Telecommunications).
 7. G. Rodríguez de los Santos, P. Reviriego, J. A. Hernández: “Packet Coalescing Strategies for Energy Efficient High-Speed Communications over Plastic Optical Fibers”, *IEEE/OSA J. Optical Communications and Networking*, vol. 7, no. 4, pp. 253–263 (April 2015).
DOI: <http://dx.doi.org/10.1364/JOCN.7.000253>
JCR Q1, Impact Factor: 2.183 (position 16/82 in Telecommunications).
 8. M. Manzano, M. Urueña, M. Suznjevic, E. Calle, J. A. Hernández, M. Matijasevic: “Dissecting the Protocol and Network Traffic of the OnLive Cloud Gaming Platform”, *Springer’s Journal of Multimedia Systems: Special Issue on Network and Systems Support for Games*, vol. 20, no. 5, pp. 451–470 (Oct. 2014).
DOI: <http://dx.doi.org/10.1007/s00530-014-0370-4>
JCR Q3, Impact Factor: 0.315 (position 73/102 in Computer Science, Theory & Methods).
 9. J. García-Reinoso, J. A. Hernández, I. Seoane, I. Vidal: “On the effect of sudden data bursts in the upstream channel of Ethernet PONs employing IPACT under the gated-service discipline”, *Optical Switching and Networking*, vol. 13, pp. 94–102 (July 2014).
DOI: <http://dx.doi.org/10.1016/j.osn.2014.02.004>
JCR Q2, Impact Factor: 1.07 (position 36/77 in Telecommunications).

10. R. Sánchez, J. A. Hernández, D. Larrabeiti: “Troubleshooting PON networks effectively with Carrier-grade Ethernet and WDM-PON”, *IEEE Communications Magazine*, vol. 52, no. 2, pp. S7–S13, (Feb. 2014).
DOI: <http://dx.doi.org/10.1109/MCOM.2014.6736739>
JCR Q1, Impact Factor: 4.01 (position 3/77 in Telecommunications).
11. R. González, A. Muñoz, J. A. Hernández, R. Cuevas: “On the tweet arrival process at Twitter: Analysis and applications”, *Transactions on Emerging Telecommunications Technologies*, vol. 25, no. 2, pp. 273–282 (Feb. 2014).
DOI: <http://dx.doi.org/10.1002/ett.2772>
JCR Q3, Impact Factor: 0.78 (position 56/78 in Telecommunications, year 2013).
12. M. I. Sánchez, M. Urueña, A. de la Oliva, J. A. Hernández, C. J. Bernardos: “On providing mobility management in WOBANs: Integration with PMIPv6 and MIH”, *IEEE Communications Magazine*, vol. 51, no. 10, pp. 172–181 (Oct, 2013).
DOI: <http://dx.doi.org/10.1109/MCOM.2013.6619581>
JCR Q1, Impact Factor: 4.46 (position 3/78 in Telecommunications).
13. G. Rodríguez de los Santos, M. Urueña, A. Muñoz, J. A. Hernández: “Buffer design under bursty traffic with applications in FCoE Storage Area Networks”, *IEEE Communications Letters*, vol. 17, no. 2, pp. 413–416 (Feb, 2013).
DOI: <http://dx.doi.org/10.1109/LCOMM.2012.122012.122313>
JCR Q2, Impact Factor: 1.46 (position 27/78 in Telecommunications).
14. A. de la Oliva, T. Vargas, J. C. Guerri, J. A. Hernández, P. Reviriego: “Analysis of Energy Efficient Ethernet on video streaming servers”, *Computer Networks*, vol. 57, no. 3, pp. 599–608 (Feb. 2013).
DOI: <http://dx.doi.org/10.1016/j.comnet.2012.09.019>
JCR Q2, Impact Factor: 1.28 (position 17/50 in Computer Science, Hardware & Architecture).
15. I. Seoane, J. A. Hernández, D. Larrabeiti, R. Romeral: “Analysis and simulation of a delay-based service differentiation algorithm for IPACT-based PONs”, *Photonic Network Communications*, vol. 24, no. 3, pp. 228–236 (Nov. 2012).
DOI: <http://dx.doi.org/10.1007/s11107-012-0383-x>
JCR Q4, Impact Factor: 0.45 (position 63/78 in Telecommunications).
16. P. Reviriego, J. A. Maestro, J. A. Hernández, D. Larrabeiti: “Study of the potential energy savings in Ethernet by combining Energy Efficient Ethernet with Adaptive Link Rate”, *European Transactions on Telecommunications*, vol. 23, no. 3 pp. 227–233 (April 2012).
DOI: <http://dx.doi.org/10.1002/ett.1526>
JCR Q2, Impact Factor: 1.05 (position 36/78 in Telecommunications).
17. I. Seoane, E. Calle, J. A. Hernández, J. Segovia, R. Romeral, P. Vilá, M. Urueña, M. Manzano: “Failure propagation in GMPLS optical rings: CTMC model and performance analysis”, *Optical Switching and Networking*, vol 9, no. 1, pp. 39–51 (Jan. 2012).
DOI: <http://dx.doi.org/10.1016/j.osn.2011.04.002>
JCR Q3, Impact Factor: 0.72 (position 47/78 in Telecommunications).
18. D. Larrabeiti, P. Reviriego, J. A. Hernández, J. A. Maestro, M. Urueña: “Towards an energy efficient 10 Gb/s optical Ethernet: Performance analysis and viability”, *Optical Switching and Networking*, vol. 8, no. 3, pp. 131–138 (July 2011).
DOI: <http://dx.doi.org/10.1016/j.osn.2011.03.009>
JCR Q2, Impact Factor: 1.00 (position 63/135 in Computer Science, Information Systems).

19. J. L. García-Dorado, J. A. Hernández, J. Aracil, J. E. López de Vergara, S. López Buedo: “Characterization of the busy-hour traffic of IP networks based on their intrinsic features”, *Computer Networks*, vol. 55, no. 9, pp. 2111–2125 (June 2011).
DOI: <http://dx.doi.org/10.1016/j.comnet.2011.02.015>
JCR Q2, Impact Factor: 1.2 (position 16/50 in Computer Science, Hardware & Architecture).
20. I. Seoane, G. Rodríguez de los Santos, J. A. Hernández, M. Urueña, R. Romeral, Á. Cuevas, D. Larrabeiti: “Analysis of delay mean and variance of collision-free WDM rings with segment recirculation of blocked traffic”, *Photonic Network Communications*, vol. 21, no. 3, pp. 278–287 (June 2011).
DOI: <http://dx.doi.org/10.1007/s11107-010-0299-2>
JCR Q3, Impact Factor: 0.48 (position 58/79 in Telecommunications).
21. P. Reviriego, B. Huiszoon, V. López, R. Coenen, J. A. Hernández, J. A. Maestro: “Improving energy efficiency in IEEE 802.3ba high-rate Ethernet optical links”, *IEEE Journal Selected Topics in Quantum Electronics*, vol. 17, no. 2, pp. 419–427 (Feb. 2011).
DOI: <http://dx.doi.org/10.1109/JSTQE.2010.2050136>
JCR Q1, Impact Factor: 3.78 (position 11/245 in Engineering, Electrical and Electronic).
22. G. Rodríguez de los Santos, M. Urueña, J. A. Hernández, D. Larrabeiti: “On Providing Metro Ethernet Services over Transparent WDM Optical Rings”, *IEEE Network*, vol. 25, no. 1, pp. 14–19 (Jan. 2011).
DOI: <http://dx.doi.org/10.1109/MNET.2011.5687948>
JCR Q1, Impact Factor: 2.24 (position 4/50 in Computer Science, Hardware & Architecture).
23. V. López, J. A. Hernández, Ó. González de Dios, J. P. Fernández-Palacios, J. Aracil: “Multi-layer traffic engineering of IP over WDM networks based on Bayesian decision theory”, *IEEE/OSA Journal of Optical Communications and Networking*, vol. 2, no. 8, pp. 515–529 (July 2010).
DOI: <http://dx.doi.org/10.1364/JOCN.2.000515>
JCR Q2, Impact Factor: 1.13 (position 26/80 in Telecommunications).
24. P. Reviriego, J. A. Maestro, J. A. Hernández, D. Larrabeiti: “Burst transmission in Energy Efficient Ethernet”, *IEEE Internet Computing*, vol. 14, no. 4, pp. 30–37 (July 2010).
DOI: <http://dx.doi.org/10.1109/MIC.2010.52>
JCR Q1, Impact Factor: 2.51 (position 7/99 in Computer Science, Software Engineering).
25. P. M. Santiago del Río, J. A. Hernández, J. Aracil, J. E. López de Vergara, J. Domzal, R. Wojcik, P. Cholda, K. Wajda, J. P. Fernández Palacios, Ó. González de Dios, R. Duque: “A reliability analysis of Double-Ring topologies with Dual Attachment using p-cycles for optical metro networks”. *Computer Networks*, vol. 54, no. 8, pp. 1328–1341 (June 2010).
DOI: <http://dx.doi.org/10.1016/j.comnet.2009.10.018>
JCR Q2, Impact Factor: 1.18 (position 22/78 in Telecommunications).
26. D. Morató, J. Aracil, J. A. Hernández, J. L. García-Dorado: “On the blocking time distribution of core OBS switches”. *Photonic Network Communications*, vol. 18, no. 3, pp. 314–322 (Dec. 2009).
DOI: <http://dx.doi.org/10.1007/s11107-009-0194-x>
JCR Q3, Impact Factor: 0.77 (position 42/77 in Telecommunications).
27. P. Reviriego, J. A. Hernández, D. Larrabeiti, J. A. Maestro: “Performance evaluation of Energy Efficient Ethernet”. *IEEE Communications Letters*, vol. 13, no. 9, pp. 697–699

- (Sep., 2009).
DOI: <http://dx.doi.org/10.1109/LCOMM.2009.090880>
JCR Q2, Impact Factor: 1.14 (position 24/77 in Telecommunications).
28. P. Reviriego, J. A. Hernández, J. Aracil: “Assembly admission control based on random packet selection at border nodes in Optical Burst-Switched networks”. *Photonic Network Communications*, vol. 18, no. 1, pp. 39–48 (Aug. 2009).
DOI: <http://dx.doi.org/10.1007/s11107-008-0168-4>
JCR Q3, Impact Factor: 0.77 (position 42/77 in Telecommunications).
29. J. A. Hernández, P. Reviriego, J. L. García-Dorado, V. López, D. Larrabeiti, J. Aracil: “Performance evaluation and design of Polymorphous OBS networks with guaranteed TDM services”. *IEEE/OSA Journal of Lightwave Technology*, vol. 27, no. 13, pp. 2495–2505 (July 2009).
DOI: <http://dx.doi.org/10.1109/JLT.2008.2012136>
JCR Q1, Impact Factor: 2.19 (position 10/79 in Optics).
30. J. A. Hernández, J. Aracil, V. López, J. L. García-Dorado, L. de Pedro: “Performance analysis of asynchronous best-effort traffic coexisting with TDM reservations in polymorphous OBS networks”. *Photonic Network Communications*, vol. 17, no. 2, pp. 93–103 (April. 2009).
DOI: <http://dx.doi.org/10.1007/s11107-008-0145-y>
JCR Q3, Impact Factor: 0.77 (position 42/77 in Telecommunications).
31. J. E. Gabeiras, V. López, J. Aracil, J. P. Fernández Palacios, C. García Argos, Ó. González de Dios, F. J. Jiménez Chico, J. A. Hernández: “Is multilayer networking feasible?” *Optical Switching and Networking*, vol. 6, no. 2, pp. 129–140 (April, 2009).
DOI: <http://dx.doi.org/10.1016/j.osn.2009.02.004>
JCR Q2, Impact Factor: 0.981 (position 32/80 in Telecommunications, year 2010).
32. B. Huiszoon, J. A. Hernández, H. de Waardt, G. D. Khoe, J. Aracil, A. M. J. Koonen: “Performance evaluation of an optical transparent access tier based on PON and spectral codes”. *IEEE Journal on Selected Areas in Communications*, vol. 27, no. 2, pp. 143–155 (Feb. 2009).
DOI: <http://dx.doi.org/10.1109/JSAC.2009.090206>
JCR Q1, Impact Factor: 3.76 (position 2/77 in Telecommunications).
33. J. L. García-Dorado, J. A. Hernández, J. Aracil, J. E. López de Vergara, F. Monserrat, E. Robles, T. de Miguel: “On the duration and spatial characteristics of Internet traffic measurement experiments”. *IEEE Communications Magazine*, vol. 46, no. 11, pp. 148–155 (Nov. 2008).
DOI: <http://dx.doi.org/10.1109/MCOM.2008.4689258>
JCR Q1, Impact Factor: 2.8 (position 6/67 in Telecommunications).
34. V. López, J. A. Hernández, J. Aracil, J. P. Fernández-Palacios, Ó. González de Dios: “A Bayesian decision theory approach for the techno-economic analysis of an all-optical router (extended version)”. *Computer Networks*, vol. 52, issue 10, pp. 1916–1926 (July 2008).
DOI: <http://dx.doi.org/10.1016/j.comnet.2008.02.018>
JCR Q2, Impact Factor: 1.3 (position 18/67 in Telecommunications).
35. J. A. Hernández, J. Aracil, L. de Pedro, P. Reviriego: “Analysis of blocking probability of data bursts with continuous-time variable offsets in single wavelength OBS switches”. *IEEE/OSA Journal of Lightwave Technology*, vol. 26, no. 12, pp. 1559–1568 (June, 2008).
DOI: <http://dx.doi.org/10.1109/JLT.2008.919364>
JCR Q1, Impact Factor: 2.74 (position 27/229 in Engineering, Electrical and Electronic).

36. P. Reviriego, J. A. Hernández, J. Aracil: “Analysis of average burst-assembly delay and applications in proportional service differentiation”. *Photonic Network Communications*, vol. 14, no. 2, pp. 183–197 (Oct. 2007).
DOI: <http://dx.doi.org/10.1007/s11107-007-0065-2>
JCR Q2, Impact Factor: 0.53 (position 33/66 in Telecommunications).
37. J. A. Hernández, J. Aracil, V. López, J. López de Vergara: “On the analysis of burst-assembly delay in OBS networks and applications in delay-based service differentiation”. *Photonic Network Communications*, vol. 14, no. 1, pp. 49–62 (Aug. 2007).
DOI: <http://dx.doi.org/10.1007/s11107-006-0048-8>
JCR Q2, Impact Factor: 0.53 (position 33/66 in Telecommunications).
38. J. A. Hernández, I. W. Phillips, J. Aracil: “Discrete-time heavy-tailed chains, and their properties in modeling network traffic”. *ACM Trans. Modeling and Computer Simulation*, vol. 17, no. 4, article no. 17, 11 pages (Sept. 2007).
DOI: <http://dx.doi.org/10.1145/1276927.1276930>
JCR N/D, Impact Factor: 1.029 (position N/D in Mathematics, Applied, year 2008).
39. J. A. Hernández, I. W. Phillips: “Weibull mixture model to characterise end-to-end Internet delay at coarse time-scales”. *IEE Proceedings in Communications*, vol. 153, no. 2, pp. 295–304 (April 2006).
DOI: <http://dx.doi.org/10.1049/ip-com:20050335>
JCR Q4, Impact Factor: 0.2 (position 174/206 in Engineering, Electrical and Electronic).
40. O. Holland, A. H. Aghvami, I. W. Phillips, J. A. Hernández: “Feedback load characteristics of reliable multicast downloads in mobile networks”. *Electronics Letters*, vol. 41, no. 25, pp. 1385–1386 (Dec. 2005).
DOI: <http://dx.doi.org/10.1049/el:20053507>
JCR Q2, Impact Factor: 1.02 (position 70/208 in Engineering, Electrical and Electronic).

4.3 Conference in-proceedings

1. I. Martín, J. A. Hernández, S. de los Santos, A. Guzmán: “Insights of antivirus relationships when detecting Android malware: A data analytics approach”, in *ACM Conf. on Computer and Communications Security (CCS’16)*. Vienna, Austria. Oct. 2016.
DOI: <http://dx.doi.org/10.1145/2976749.2989038>
2. A. Muñoz, I. Martín, A. Guzmán, J. A. Hernández: “Android malware detection from Google Play meta-data: selection of important features”, in *IEEE Conf. Communications and Network Security (CNS’15)*. Florence, Italy. Sep. 2015.
DOI: <http://dx.doi.org/10.1109/CNS.2015.7346893>
3. G. Rodríguez de los Santos, J. A. Hernández, M. Urueña, A. Muñoz: “A Bloom filter-based monitoring station for a Lawful Interception Platform”, in *Int. Conf. Multimedia Communications, Services & Security (MCSS)*. Krakow, Poland. June 2014. **Best paper award**. Reprinted as: *Communications in Computer and Information Science*, vol. 429, pp. 214–228, Springer 2014.
DOI: http://dx.doi.org/10.1007/978-3-319-07569-3_18
4. D. Larrabeiti, M. Umar, R. Sánchez, J. A. Hernández: “Heuristics for PON-based 5G backhaul design”, in *Int. Conf. Transparent Optical Networks (ICTON)*. Graz, Austria. July 2014.
DOI: <http://dx.doi.org/10.1109/ICTON.2014.6876513>

5. R. Sánchez, J. A. Hernández, D. Larrabeiti: “Using transparent WDM metro rings to provide an out-of-band control network for OpenFlow in MAN”, in *Int. Conf. Transparent Optical Networks (ICTON)*. Cartagena, Spain. June 2013.
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6. D. Larrabeiti, L. Kazovsky, M. Urueña, A. R. Dhaini, S. Yin, J. A. Hernández, P. Reviriego, T. Sunrong Shen: “Multicast service for UltraFlow access networks”, in *Int. Conf. Transparent Optical Networks (ICTON)*. Cartagena, Spain. June 2013.
DOI: <http://dx.doi.org/10.1109/ICTON.2013.6603011>
7. M. Manzano, J. A. Hernández, M. Urueña, E. Calle: “An empirical study of Cloud Gaming”, in *Workshop on Network and Systems Support for Games (NetGames)*. Venice, Italy. Nov. 2012.
DOI: <http://dx.doi.org/10.1109/NetGames.2012.6404021>
8. M. Manzano, J. A. Hernández, M. Urueña, E. Calle: “A first measurement study of On-line Cloud Gaming”, in *Workshop on Future Internet: Efficiency in High-Speed Networks (WFIERRO)*. Cartagena, Spain. July 2012.
9. J. A. Hernández, I. Seoane, R. Romeral, D. Larrabeiti: “A note on the potential energy savings by extending the average cycle times in Passive Optical Networks”, in *European Conf. on Network and Optical Communications (NOC)*. Vilanova i la Geltru, Spain. June 2012. **Invited Paper**.
DOI: <http://dx.doi.org/10.1109/NOC.2012.6249923>
10. D. Larrabeiti, J. A. Hernández, I. Seoane, R. Romeral: “Managing delay in the access”, in *European Conf. on Network and Optical Communications (NOC)*. Vilanova i la Geltru, Spain. June 2012. **Invited Paper**
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11. A. García, J. Sánchez, V. Sánchez, J. A. Hernández: “Integration of a regular application into a user interface adaptation engine in the MyUI project”, in *Computers Helping People with Needs*, Linz, Austria. July 2012
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DOI: http://dx.doi.org/10.1007/978-3-642-31522-0_46
12. I. Seoane, J. A. Hernández, P. Reviriego, D. Larrabeiti: “Energy-aware flow allocation algorithm for Energy Efficient Ethernet networks”, in *Int. Conf. on Software, Telecommunications and Computer Networks (SoftCOM)*. Dubrovnik, Croatia. Sept. 2011.
ISBN: 978-1-4577-1439-9
13. C. Gacimartín, J. A. Hernández, D. Larrabeiti: “A middleware architecture for designing TV-based adapted applications for the elderly”, in *Int. Conf. on Human-Computer Interaction (HCII)*. Orlando, Florida, USA. July 2011.
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DOI: http://dx.doi.org/10.1007/978-3-642-21602-2_48
14. G. Rodríguez de los Santos, J. A. Hernández, M. Urueña, I. Seoane, D. Larrabeiti: “Study of a hybrid OCDMA-WDM segmented ring for Metropolitan Area Networks”, in *IEEE Int. Conf. on High Performance Switching and Routing (HPSR)*. Cartagena, Spain. July 2011. DOI: <http://dx.doi.org/10.1109/HPSR.2011.5986008>
15. M. Gramaglia, P. Serrano, J. A. Hernández, M. Calderón, C. J. Bernardos: “New insights from the analysis of free flow vehicular traffic in highways”, in *IEEE Int. Symp. on a World of Wireless Mobile and Multimedia Networks (WoWMoM)*. Lucca, Italy. June 2011.
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17. R. Romeral, P. Reviriego, D. Larrabeiti, J. A. Hernández: “Energy Efficiency mechanism for Lambda LSPs in Optical Networks”, in *II Workshop in Multi-layer Networks*. Vilanova i la Geltru, Spain. 2010.
18. P. Reviriego, J. A. Maestro, J. A. Hernández, D. Larrabeiti: “Burst transmission in Energy-Efficient Ethernet: First experiments with Poissonian traffic”, in *II Workshop in Multi-layer Networks*. Vilanova i la Geltru, Barcelona, Spain. 2010.
19. P. Reviriego, D. Larrabeiti, J. A. Maestro, J. A. Hernández, P. Afshar, L. G. Kazovsky: “Energy efficiency in 10 Gbps Ethernet transceivers: Copper versus Fiber”, in *Optical Fiber Communication Conference and Exposition OFC/NFOEC*. San Diego, CA, USA. March 2010.
DOI: [10.1364/NFOEC.2010.JThA51](https://doi.org/10.1364/NFOEC.2010.JThA51)
20. J. Domzal, R. Wójcik, K. Wajda, A. Jajszczyk, V. López, J. A. Hernández, J. Aracil, C. Cárdenas and M. Gagnaire: “A Multi-layer Recovery Strategy in FAN over WDM Architectures”, in *Int. Conf. Design of Reliable Communication Networks (DRCN)*. Washington DC, USA. Oct. 2009.
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DOI: <http://dx.doi.org/10.1109/ICTON.2009.5185086>
22. P. M. Santiago del Río, J. A. Hernández, V. López, J. Aracil, B. Huiszoon: “On the feasibility of transmission scheduling in a code-based transparent passive optical network architecture”, in *Conf. on Networks and Optical Communications (NOC)*. Valladolid, Spain. June 2009.
23. V. López, Ó. González de Dios, J. A. Hernández, R. Duque, C. García Argos, J. Jiménez Chico, J. P. Fernández-Palacios, J. Aracil: “Performance evaluation of threshold-based multi-layer traffic engineering strategies”, in *Conf. on Networks and Optical Communications (NOC)*. Valladolid, Spain. June 2009.
24. V. López, J. A. Hernández, J. Aracil, J. P. Fernández Palacios O. González de Dios: “Performance evaluation of a Bayesian decisor in a multi-hop IP over WDM network scenario”, in *Int. Conf. Optical Networking Design and Modeling (ONDM)*. Braunschweig, Germany. Feb. 2009.
E-ISBN: 978-3-901882-34-0
25. J. E. López de Vergara, J. Aracil, J. Martínez, A. Salvador, J. A. Hernández: “Application of ontologies for the integration of network monitoring platforms”, in *European Workshop on Mechanisms for Mastering Future Internet*. Salzburg, Austria. July 2008.
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26. J. Aracil, J. A. Hernández, A. J. Elizondo, R. Duque, O. González de Dios: “On local CAC schemes for scalability of high-speed networks”, in *Int. Conf. Transparent Optical Networks (ICTON)*. Athens, Greece. June 2008.
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27. L. de Pedro, J. Aracil, J. A. Hernández, J. L. García-Dorado: “Analysis of the processing and sojourn times of Burst Control Packets in Optical Burst Switches”, in *Int. Conf. Optical Network Design and Modelling (ONDM)*. Vilanova i la Geltru, Spain. March 2008.
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DOI: <http://dx.doi.org/10.1109/NOMS.2008.4575132>
29. V. López, C. Cárdenas, J. A. Hernández, J. Aracil, M. Gagnaire: “Extension of the Flow-Aware Networking (FAN) architecture to the IP over WDM environment”, in *Int. Tel. Net. Workshop on QoS in Multiservice IP networks (QoSIP)*. Venice, Italy. Feb. 2008.
DOI: <http://dx.doi.org/10.1109/ITNEWS.2008.4488137>
30. J. L. García-Dorado, J. Aracil, J. A. Hernández, S. López-Buedo, J. E. López de Vergara, P. Reviriego, G. Huecas, S. Pavón, J. Quemada: “A Quality of Service assessment technique for large-scale management of multimedia flows”, in *IFIP/IEEE Int. Conf. on Management of Multimedia and Mobile Networks & Services (MMNS)*, San Jose, USA. Oct. 2007.
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DOI: <http://dx.doi.org/10.1109/ICTONMW.2007.4446930>
32. J. L. García-Dorado, J. E. López de Vergara, J. Aracil, V. López, J. A. Hernández, S. López-Buedo, L. de Pedro: “Utilidad de los flujos netFlow de RedIRIS para análisis de una red académica”, *Jornadas Técnicas de RedIRIS*, 2007.
Reprinted as: Boletín de la Red Nacional de I+D RedIRIS, no. 82-83, pp. 125–129, 2008, ISSN: ISSN 1139-207X.
URL: <https://www.rediris.es/difusion/publicaciones/boletin/82-83/ponencia2.5A.pdf>
33. J. A. Hernández, G. Hu, J. Aracil: ”Analysis of IP delay variation in edge OBS nodes”, in *European Conf. on Networks and Optical Communications (NOC)*. Stockholm, Sweden. June 2007.
ISBN: 978-91-633-0869-7
34. V. López, J. A. Hernández, J. Aracil, J. P. Fernández-Palacios, Ó. González de Dios: “A Bayesian decision theory approach for the techno-economic analysis of an all-optical router”, in *Int. Conf. on Optical Network Design and Modelling (ONDM)*, Athens, Greece. May 2007.
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35. J. E. López de Vergara, J. Aracil, J. A. Hernández: “An information model for the management of Optical Burst-Switched networks”, in *IFIP/IEEE Symp. Integrated Management*. Munich, Germany. May 2007.
DOI: <http://dx.doi.org/10.1109/INM.2007.374722>

36. J. A. Hernández, J. Aracil: “On the early release of Burst-Control Packets in Optical Burst-Switched networks”, in *Int. Conf. on Information Networking (ICOIN)*. Estoril, Portugal. Jan. 2007.
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37. J. Aracil, J. A. Hernández, K. Vlachos, E. Varvarigos: “Jitter-based analysis and discussion of burst-assembly algorithms”, in *Int. Conf. Broadband Networks and Systems (BroadNets)*. San Jose, CA, USA. Oct. 2006.
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38. J. A. Hernández, J. Aracil, V. López, J. Fernández, Ó. González: “A resilience-based comparative study between Optical Burst Switching and Optical Circuit Switching technologies”, in *1st Int. Conf. on Transparent Optical Networks (ICTON)*. Nottingham, United Kingdom, June 2006.
DOI: <http://dx.doi.org/10.1109/ICTON.2006.248441>
39. J. A. Hernández, I. W. Phillips: “On the combined effects of Bit-Error Rate and delay-distribution tail on TCP performance”, in *1st Int. Conf. on Internet Technologies and Applications*. Wrexham, United Kingdom. Sep. 2005.
ISBN: 0-94688-132-4
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ISBN: 0-9538863-5-2
41. J. A. Hernández, I. W. Phillips, J. M. Moguerza: “An SS-SVM approach to generate synthetic network delays”, in *12th Int. Conf. on Analytical and Stochastic Modelling Techniques and Applications*. Riga, Latvia. June 2005.
ISBN: 1-84233-116-7
42. J. A. Hernández, I. W. Phillips: “Adaptive Weibull mixture models to track real-time network delays”, in *IEEE INFOCOM Student’s Workshop*. Miami, Florida, USA. March. 2005.
43. J. A. Hernández, I. W. Phillips: “A survival approach for network performance analysis”, in *Int. Conf. on WWW/Internet*. Madrid, Spain. Oct. 2004.
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44. J. A. Hernández, I. W. Phillips: “End-to-end Internet performance characterisation using Weibull distributions”, in *11th Int. Conference on Analytical and Stochastic Modelling Techniques and Applications*. Magdeburg, Germany. June, 2004.
ISBN: 3-936150-38-9
45. J. A. Hernández, I. W. Phillips: “Modelling end-to-end Internet delay for load tracking”, in *5th Postgraduate Research Conference in Electronics, Photonics, Communications & Networks and Computing Science*. Hatfield, United Kingdom. April, 2004.

4.4 Peer-reviewing

Dr. Hernández has served as reviewer in the following journal magazines: IEEE Network Magazine, IEEE Communications Magazine, IEEE JSAC, IEEE Communications Letters, IEEE Trans. Communications, IEEE/OSA J. Lightwave Technology, IEEE/OSA J. Optical Communications and Networking, ACM Transactions on Internet Technology, Elsevier’s Optical Switching & Networking, IET Communications.

4.5 Patents

- A. de la Oliva, X. Costa, J. A. Hernández: “Ethernet frames encapsulation within CPRI basic frames”. European patent, code: PCT/EP 2015/077395, Filed in 23rd Nov. 2015. Owners: Universidad Carlos III de Madrid, NEC Laboratories Europe Ltd.

4.6 Research projects

4.6.1 Spanish-funded projects

1. Project Title: Technology enablers for a flexible Elastic Tb/s Optical network for 5G backhaul (TEXEO)
Funded by: Programa Estatal de Investigación, Desarrollo e Innovación Orientada a los retos de la sociedad, Plan Estatal de Investigación Científica y Técnica de Innovación 2013-16, Convocatoria 2016, Ministerio de Economía y Competitividad, grant no. TEC2016-80339-R
Participants: Universidad Carlos III de Madrid
Duration: from Jan. 2017 until Dec. 2019
Funds: 183,000 Euros
Project Coordinator: José Alberto Hernández and David Larrabeiti (Univ. Carlos III de Madrid)
2. Project Title: Nuevos paradigmas de redes elásticas para un mundo radicalmente basado en Cloud y Fog computing (Elastic Networks)
Funded by: Acciones de dinamización Redes de Excelencia, Plan Estatal de Investigación Científica y Técnica de Innovación 2013-16, grant no. TEC2015-71932-REDT
Participants: Universidad Carlos III de Madrid, Universidad Politécnica de Cataluña, Centre Tecnològic de Telecomunicacions de Catalunya, Universidad de Girona, Universidad Antonio de Nebrija, Universidad Politécnica de Madrid, Universidad Politécnica de Cartagena, Universidad Politécnica de Valencia, Universidad de Valladolid
Duration: from Oct. 2015 until Sep. 2017
Funds: 30,000 Euros
Project Coordinator: David Larrabeiti (Univ. Carlos III de Madrid)
3. Project Title: Mecánica estadística para Big Data: Adquisición, análisis y modelización (BigDataAM)
Funded by: Programa Estatal de Fomento de la Investigación Científica y Técnica de Excelencia, MINECO Spain, grant no. FIS2013-47532-C3-3-P
Participants: Universidad de Barcelona, Universidad Rovira Virgili, Universidad Carlos III de Madrid
Duration: from Jan. 2014 until Dec. 2016
Funds: 31,480 Euros
Project Coordinator: Ángel Cuevas Rumín and Esteban Moro (Univ. Carlos III de Madrid)
4. Project Title: Tecnologías Integradas para la Gestión y Operación de Redes 5G (TIGRE5-CM)
Funded by: Programas de Actividades de I + D entre grupos de investigación de la Comunidad de Madrid en Tecnologías 2013, Comunidad de Madrid, Spain, grant no. S2013/ICE-2919
Participants: IMDEA Networks, Universidad Carlos III de Madrid, Universidad de Alcalá de Henares

- Duration: from Oct. 2014 until Sept. 2018
Funds: 51,000 Euros
Project Coordinator: Joerg Widmer (IMDEA Networks); Local coordinator: José Alberto Hernández (UC3M)
URL: <http://tigre5-cm.es>
5. Project Title: Convergencia de redes de acceso y metropolitana de nueva generación (CRAMNET)
Funded by: Plan Nacional de I+D+I (2013-2015), Spain, grant no. TEC2012-38362-C03-01
Participants: Universidad Carlos III de Madrid
Duration: from Jan 2013 until Dec. 2015
Funds: 169,650 Euros
Project Coordinator: Manuel Urueña Pascual (Univ. Carlos III de Madrid)
 6. Project Title: Future Internet: Eficiencia en las redes de altas prestaciones (FIERRO)
Funded by: Plan Nacional de I+D+I (2008-2011), grant no. TEC2010-12250-E
Participants: Univ. Politécnica de Cartagena, Univ. Carlos III de Madrid, Univ. Politécnica de Catalunya, Univ. de Girona, Centro Extremeño de investigación Innovación y Supercomputación, Fundación I2CAT, Univ. de Málaga, Univ. de Valladolid, Univ. Politécnica de Valencia, Univ. Pública de Navarra, Univ. de Vigo, Univ. Autónoma de Madrid, Univ. del País Vasco, Centre Tecnologic de Telecomunicacions de Catalunya, RedIris, Univ. Politécnica de Madrid, Univ. de Sevilla, Telefónica I+D
Duration: from May 2011 until May 2012
Funds: 10,000 Euros
Project Coordinator: Pablo Pavón (Univ. Politécnica de Cartagena); Local Coord: José Alberto Hernández
URL: <http://girtel.upct.es/projects/fierro/>
 7. Project Title: Eficiencia Energética en Redes de Comunicaciones (GreenCom)
Funded by: Comunidad de Madrid, grant no. CCG10-UC3M/TIC- 5624
Participants: Universidad Carlos III de Madrid
Duration: from Jan. 2011 until Dec. 2011
Funds: 15,640 Euros
Project Coordinator: José Alberto Hernández
 8. Project Title: Integración de Servicios Multimedia de Siguiete Generación en la Internet del Futuro (Medianet)
Funded by: Comunidad de Madrid, grant no. S-2009/TIC-1468
Participants: Universidad Carlos III de Madrid, Universidad de Alcalá de Henares, Universidad Complutense de Madrid, IMDEA Networks, Alcatel Lucent
Duration: from Jan. 2010 until Dec. 2013
Funds: 50488 Euros
Project Coordinator: Arturo Azcorra (Univ. Carlos III de Madrid).
URL: <http://www.medianet-cm.es>
 9. Project Title: Tecnologías Telemáticas para la Colaboración Ciudadana (T2C2)
Funded by: Plan Nacional de I+D+I (2008-2011), España (TIN2008-06739-C04-01)
Participants: Universidad Carlos III de Madrid, Universidad Politécnica de Madrid, Universidad de Alcalá de Henares, Universidad Politécnica de Valencia
Duración: Enero 2009 hasta: Diciembre 2011
Subvención: NA

Inv. Principal: David Larrabeiti López (UC3M)

URL: <http://adscom.it.uc3m.es/~t2c2/>

10. Project Title: Ingenio Mathematica (i-MATH).
 Funded by: Consolider Ingenio 2010, Spain, grant no. CSD2006-00032.
 Participants: Universidad de Almería, Universidad de Cádiz, Universidad de Granada, Universidad de Jaén, Universidad de Málaga, Universidad de Sevilla, Universidad de Oviedo, Universidad de Zaragoza, Universidad de Islas Baleares, Universidad de La Laguna, Universidad de Las Palmas de Gran Canaria, Universidad de Cantabria, Universidad de Castilla La Mancha, Universidad de León, Universidad de Burgos, Universidad de Salamanca, Universidad de Valladolid, ICREA, Universidad de Barcelona, Universidad de Lleida, Universidad Autónoma de Barcelona, Universidad Politécnica de Cataluña, Universidad de Girona, Universidad de Extremadura, Universidad de Santiago de Compostela, Universidad de La Coruña, Universidad de Vigo, Universidad de Alcalá, Universidad Autónoma de Madrid, CSIC, INTA, Universidad Carlos III de Madrid, Universidad Complutense de Madrid, Universidad Nacional de Educación a Distancia, Universidad Politécnica de Madrid, Universidad Rey Juan Carlos, Universidad de Murcia, Universidad de Navarra, Universidad Pública de Navarra, Universidad del País Vasco, Universidad de la Rioja, Universidad de Alicante, Universidad Jaume I de Castellón, Universidad Miguel Hernández de Elche, Universidad Politécnica de Valencia, Universidad de Valencia
 Duration: from Oct. 2006 until Sep. 2011.
 Funds: 7.5 millones de euros.
 Project Coordinator: Enrique Zuazua (Univ. Autónoma de Madrid)
 URL: <http://www.i-math.org>
11. Project Title: Dimensionado de redes IP y redes ópticas: Aplicación a la red académica española (DIOR).
 Funded by: Plan nacional de I+D, MEC, Spain (TEC-2006-03246).
 Participants: Universidad Autónoma de Madrid, RedIris
 Duration: from Oct. 2006 until Sept. 2009.
 Funds: 110,000 Euros.
 Project Coordinator: Javier Aracil Rico.
12. Project Title: Aplicaciones emergentes para Internet de nueva generación (E-MAGERIT).
 Funded by: Comunidad de Madrid, grant no. S-0505/TIC/000251.
 Participants: Universidad Autónoma de Madrid, Universidad Politécnica de Madrid, Universidad Carlos III de Madrid, Universidad de Alcalá
 Duration: from Jan. 2006 until Dec. 2009.
 Funds: 533,000 Euros.
 Project Coordinator: Juan Quemada Vives (UPM)

4.6.2 EU Funded projects

1. Project Title: 5G-Crosshaul: The 5G integrated fronthaul/backhaul
 Funded by: European Union, H2020 Program, grant no. H2020-671598
 Participants: Univ. Carlos III de Madrid (Spain), NEC Europe Ltd (United Kingdom), Ericsson AB (Sweden), Ericsson Telecomunicazioni (Italy), ATOS (Spain), Nokia (Germany), Interdigital Europe Ltd (United Kingdom), Telefónica I+D (Spain), Telecom Italia (Italy), Orange (France), Visiona IP (Spain), Eblink (France), Nextworks (Italy), Core Network Dynamics (Germany), Telnet Redes Inteligentes (Spain), Fraunhofer Institute (Germany), CTTC (Spain), Create-net (Italy), Politecnico di Torino (Italy), Lunds Universitet (Sweden), ITRI (Taiwan)
 Duration: from July 2015 until Dec. 2017

- Funds: 7.94 Million Euros total
Project Coordinator: Arturo Azcorra (Univ. Carlos III de Madrid).
URL: <http://5g-crosshaul.eu>
2. Project Title: Towards transparency and Privacy in the onlinE advertising businesS (TYPEs)
Funded by: European Union, H2020, grant no. H2020-653449
Participants: Telefónica I+D (Spain), NEC Europe Ltd (United Kingdom), The Open University (Israel), WEDIA Ltd (Greece), Asociación de Usuarios de Internet (Spain), Barcelona Media (Spain), UPCOM BVBA (Belgium), Interactive Advertising Bureau Europe (Belgium) IMDEA Networks (Spain), Univ. Carlos III de Madrid (Spain)
Duration: from May 2015 until Nov. 2017
Funds: 3.99 Million Euros total
Project Coordinator: Ricardo Baeza-Yates (Barcelona Media)
URL: http://cordis.europa.eu/project/rcn/194867_es.html
3. Project Title: Federation for FIRE, Fed4Fire - Ultra Access
Funded by: European Union, VII Framework Program, grant no. FP7-ICT-2013-318389
Participants: Interdisciplinary Institute for Broadband Technology (Belgium), University of Southampton (UK), Universit Pierre et Marie Curie Paris 6 (France), Fraunhofer Gesellschaft zur Forderung der angewandten Forschung e.V. (Germany), Technische Universitat Berlin (Germany), The University of Edinburgh (United Kingdom), Institut National de Recherche en Informatique et Automatique (France), National ICT Australia Limited (Australia), ATOS Spain SA (Spain), Panepistimo Thessalias (Greece), National Technical University of Athens (Greece), University of Bristol (UK), Fundacio Privada I2CAT (Spain), Eurescom-European Institute for Research and Strategic Studies in Telecommunications GmbH (Germany), Delivery of Advanced Network Technology to Europe Limited (UK), Universidad de Cantabria (Spain), National Information Society Agency (Korea), Universidad de Malaga (Spain), Universitat Poiltecnica de Catalunya (Spain), Universidad Carlos III de Madrid (Spain), Deimos Space Sociedad Limitada Unipersonal (Spain), Magyar Tudomanyos Akademia Szamitastechnikai es Automatizalasikutointezet (Hungary), National University of Ireland (Ireland), Lancaster University (UK), WooX InnovationsBelgium (Belgium), University of Kent (UK), British Telecommunicaitons Public Limited Company (UK), TELEVES SA (Spain)
Duration: from Oct. 2012 until Sep. 2016 Funds: 100000 Euros
Project Coordinator: Piet Demeester (iMinds)
URL: <http://www.fed4fire.eu>
4. Project Title: “Mainstreaming Accessibility through Synergistic User Modelling and Adaptability (MyUI)”
Funded by: European Union, VII Framework Program, grant no. FP7-ICT-248606
Participants: Fraunhofer-Gesellschaft zur Foerderung der Angewandten Forschung E. V. (Germany), Philips Consumer Lifestyle B.V. (Netherlands), Ingeniería y Soluciones Informáticas del Sur, Sociedad Limitada (Spain), Clevercherry.com Ltd (United Kingdom), Universidad Carlos III de Madrid (Spain), The University of Nottingham (United Kingdom), Forschungszentrum Informatik an der Universitaet Karlsruhe (Germany), Birmingham City Council (United Kingdom), Semmelweis Egyetem (Hungary), Ayuntamiento de Getafe (Spain)
Duration: from Feb 2010 to Aug. 2012 Funds: 2.4 Million Euros total
Project Coordinator: Matthias Peissner (Fraunhofer IAO, Germany)
URL: <http://myui.eu>
5. Project Title: “Intelligent information system supporting observation, searching and de-

tection for security of citizens in urban environment (INDECT)”

Funded by: European Union, VII Framework Program, grant no. SEC-2007-1.2-01

Participants: AGH University of Science and Technology (Poland), Gdansk University of Technology (Poland), InnoTec DATA G.m.b.H. & Co. KG (Germany), Grenoble INP (France), MSWIA - General Headquarters of Police (Poland), Moviquity (Spain), PSI Transcom GmbH (Germany), Police Service of Northern Ireland (United Kingdom), Poznan University of Technology (Poland), Universidad Carlos III de Madrid (Spain), Technical University of Sofia (Bulgaria), University of Wuppertal (Germany), University of York (Great Britain), Technical University of Ostrava (Czech Republic), Technical University of Kosice (Slovakia), X-Act Pro Division G.m.b.H. (Austria), Fachhochschule Technikum Wien (Austria)

Duration: from Jan. 2009 until Dec. 2013

Funds: 10.9 Million Euros

Project Coordinator: Andrej Dziech (AGH)

URL: <http://www.indect-project.eu>

6. Project Title: “Building the Future Optical Network in Europe: The e-Photon/ONE network (BONE)”.

Funded by: European Union, VII Framework Program, grant no. FP7-ICT-216863.

Participants: Interdisciplinair Inst. BreedBand Technologie - IBBT (Belgium), Vienna University of Technology (Austria), Faculte Polytechnique de Mons (Belgium), Fraunhofer Inst. for Telecommunications, HHI (Germany), Technische Universitat Berlin (Germany), Universitat Duisburg-Essen (Germany), University of Stuttgart COM-DTU (Germany), Technical University of Denmark (Denmark), Centre Tecnologic de Telecomunicacions de Catalunya (Spain), Telefónica I+D (Spain), Escuela Politecnica Superior - Univ. Autónoma de Madrid (Spain), Escuela Politecnica Superior - Univ. Carlos III de Madrid (Spain), Universitat Politecnica de Catalunya (Spain), Universidad Politécnica de Cartagena (Spain), Universidad Politécnica de Valencia (Spain), Universidad de Vigo (Spain), France Telecom R&D (France), GET / E.N.S.T. (France), Research and Education Lab. in Information Technology (Greece), Inst. of Comm. & Comp. Syst./Nat. Techn. Univ. of Athens (Greece), Research Acad. Computer Techn. Inst. Univ. of Patras (Greece), University of Athens (Greece), University of Peloponnese (Greece), Budapest University of Technology and Economics (Hungary), Univ. of Zagreb - Faculty of Elect. Eng. and Computing (Croatia), Coritel (Italy), Fondazione Ugo Bordoni (Italy), Superior Inst. of Communication and Inf. Technologies (Italy), Politecnico di Milano (Italy), Politecnico di Torino (Italy), Scuola Superiore Sant’Anna (Italy), DEIS University of Bologna (Italy), University of Modena and Reggio Emilia (Italy), Sapienza-Universita di Roma (Italy), Telenor (Norway), Eindhoven Univ. of Technology (Netherlands), Instituto de Telecomunicacoes (Portugal), AGH University of Science and Technology (Polonia), Poznan University of Technology (Polonia), Huawei Technologies Sweden AB (Suecia), Kungliga Tekniska Hogskolan (Sweden), Bilkent Universitesi (Turkey), Universita degli Studi Roma Tre (Italy), Optoelectronics Research Centre - Univ. of Southampton (United Kingdom), University of Cambridge (United Kingdom), University College London (United Kingdom), University of Essex (United Kingdom), University of Wales Swansea (United Kingdom), Ericsson Limited (United Kingdom).

Duration: from Jan. 2008 until Dec. 2010.

Funds: 3.75 Million Euros.

Project Coordinator: Peter van Daele (Ghent University, Belgium).

URL: <http://www.ict-bone.ccaba.upc.edu/>

7. Project Title: “Optical networks: Towards bandwidth manageability and cost efficiency (e-Photon/ONE+)”.

Funded by: European Union, VI Framework Program, grant no. FP6-IST-027497.

Participants: Politecnico di Torino (Italy), Alcatel (Italia), DEIS Università di Bologna (Italy), Fondazione Ugo Bordoni (Italy), Politecnico di Milano (Italy), Scuola Superiore S. Anna (Italy), Telefonica Investigación y Desarrollo (Spain), Universidad Autónoma de Madrid (Spain), Universidad Carlos III de Madrid (Spain), Universitat Politècnica de Catalunya (Spain), Universidad Politécnica de Valencia (Spain), Instituto de Telecomunicações (Portugal), Groupement des Ecoles des Telecommunications (France), France Telecom (France), Faculte Polytechnique de Mons (Belgium), IBBT - Ghent University (Belgium), Multitel (Belgium), Technical University of Eindhoven (Netherlands), Fujitsu Laboratories of Europe (United Kingdom), Intel Research Cambridge (United Kingdom), Optoelectronics Research Centre - University of Southampton (United Kingdom), University College London (United Kingdom), University of Essex (United Kingdom), Technical University of Denmark (Denmark), Kista Photonics Research Centre (Sweden), Telenor ASA (Norway), Fraunhofer Gesellschaft - Heinrich Hertz Institute (Germany), Technische Universität Berlin (Germany), Universität Duisburg-Essen (Germany), University of Stuttgart - Institute of Communication Networks and Computer Engineering (Germany), Vienna University of Technology - Institute of Broadband Communications (Austria), AGH University of Science and Technology (Poland), Budapest University of Technology and Economics (Hungary), Fakultet Elektrotehnike i Racunarstva - University of Zagreb (Croatia), Research and Education Society in Information Technology (Greece), Research Academic Computer Technology Institute - University of Patras (Grecia), Institute of Communication and Computer Systems - National Technical University of Athens (Greece), National and Kapodestrian University of Athens (Greece), University of Peloponnese (Greece), Bilkent University (Turkey)

Duration: from March 2006 until Feb. 2008.

Funds: 3.75 Million Euros.

Project Coordinator: Fabio Neri (Politecnico di Torino, Italia).

URL: <http://www.e-photon-one.org>

4.6.3 Research projects funded by companies

1. Project title: “Applications of Big Data Analytics in security: comparative analysis of Anti-Virus engines”.
Funded by: Telefónica Digital de España.
Duration: From July 2016 until Nov. 2016.
Funds: 7,000 euros.
Coordinator: José Alberto Hernández (UC3M).
2. Project title: “Big Data Analytics applied to the Android apps: characterisation and early detection of Android malware”.
Funded by: Telefónica Digital Identity and Privacy.
Duration: From Sept. 2015 until Nov. 2015.
Funds: 7,000 euros.
Coordinator: José Alberto Hernández (UC3M).
3. Project title: “Protocolo de comunicación Concentrador - Servidor energéticamente eficiente para un escenario del Internet de las cosas (Internet of Things escenario)”.
Funded by: Datatech Sistemas Digitales Avanzados, S.L.
Duration: From March 2015 until May 2015.
Funds: 15,000 euros.
Coordinator: José Alberto Hernández (UC3M).
4. Project title: “Desarrollo de la Administración Electrónica y el fomento del uso de las

Tecnologías de la Información y de la Comunicación por los ciudadanos de Getafe”.

Funded by: Ayuntamiento de Getafe.

Duration: From Jan. 2010 until Dec. 2011.

Funds: 99,000 euros.

Coordinator: David Larrabeiti López (UC3M).

5. Project title: “Sistema Altamira y servicios relacionados para Colombia y prestaciones”.
Funded by: Telefónica I+D.
Duration: From March 2008 until Feb. 2009.
Funds: 20,000 euros.
Coordinator: Javier Aracil Rico (UAM).
6. Project title: “Acceso e interconexión: Aspectos técnicos y de negocio (fase 2)”.
Funded by: Telefónica I+D.
Duration: From March 2007 until Feb. 2008.
Funds: 20,000 euros.
Coordinator: Javier Aracil Rico (UAM).
7. Project title: “Protección, calidad de servicio y análisis de impacto de servicios P2P y GRID sobre redes ópticas”.
Funded by: Telefónica I+D.
Duration: From March 2006 until Feb. 2007.
Funds: 20,000 euros.
Coordinator: Javier Aracil Rico (UAM).
8. Project title: “Soporte técnico para el trabajo de consultoría en redes ópticas inteligentes (OPS/OBS y GMPLS)”.
Funded by: Telefónica I+D.
Duration: March 2005 until Feb. 2006.
Funds: 20,000 euros.
Coordinator: Javier Aracil Rico (UAM).

4.7 Supervised Ph.D. Students

- Rafael Sánchez Fuentes: “Planning, optimization and operation of access and Ethernet optical networks for the provisioning of high-speed symmetrical services”, Universidad Carlos III de Madrid. Defended in March 2016 and awarded Sobresaliente Cum Laude. Ph.D. Telematic Engineering Award 2016
Link: http://www.uc3m.es/ss/Satellite/Doctorado/_/TextoMixta/1371211867741/#premiados
Supervisors: David Larrabeiti and José Alberto Hernández.
URL: <http://hdl.handle.net/10486/2736>
- Gerson Rodríguez de los Santos López: “Converged optical Ethernet technologies in the LAN, MAN and SAN: Novel architectures, performance analysis and energy efficiency”, Universidad Carlos III de Madrid. Defended in July 2014 and awarded Sobresaliente, International Ph.D.
Supervisor: José Alberto Hernández.
URL: <http://hdl.handle.net/10016/20136>
- Isaac Seoane Pujol: “Contributions to Next-Generation Optical Networks Design: Resilience, Quality of Service and Energy Efficiency”, Universidad Carlos III de Madrid. Defended in April 2012 and awarded Apto Cum Laude.

Supervisors: David Larrabeiti and José Alberto Hernández.

URL: <http://hdl.handle.net/10016/14949>

- Víctor López Álvarez: “End-to-end Quality of Service provisioning in multilayer and multidomain environments”, Universidad Autónoma de Madrid. Defended in April 2009 and awarded Sobresaliente Cum Laude, European Ph.D.
Awarded with Telefónica Prize as Best Doctoral Thesis in Telecommunication Network and Services 2009
Link: https://www.coit.es/index.php?op=actos_premios_739
Supervisors: Javier Aracil Rico and José Alberto Hernández. URL: <http://hdl.handle.net/10486/2736>

5 Other awards

- Two six-year of Quality Research periods: 2003-08 and 2009-14, awarded by CNEAI, Ministry of Science and Education.
- Two five-year of Quality Teaching periods: 2003-09 and 2010-14, awarded by Ministry of Science and Education.