Curriculum Vitae

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José Manuel de Sousa de Matos Rufino (http://www.navigators.di.fc.ul.pt/wiki/José_Rufino) (senior researcher, male) is Assistant Professor at Department of Informatics Faculty of Sciences, University of Lisboa, Portugal, since 2003. From 1992 to 2003, has lectured at the Department of Electrical and Computer Engineeering of Instituto Superior Técnico, Lisboa, Portugal.

He graduated in Electrical and Computer Engineering by Instituto Superior Técnico, Portugal. He holds a M.Sc. and a Ph.D. degree in Electrical and Computer Engineering, by the Technical University of Lisbon, Portugal.

From 1985 to 1996 he was a member of the Distributed Systems and Industrial Automation Group at Instituto of Engenharia de Sistemas e Computadores (INESC), Lisboa, Portugal. From 1996 to 2003, he was a researcher at Centro de Sistemas Telemáticos e Computacionais (CSTC), Instituto Superior Técnico, Lisboa, Portugal. Since 2003, he is a senior researcher at LaSIGE (Laboratório de Sistemas Informáticos de Grande Escala), Lisboa, Portugal, integrated in the Navigators Group (http://www.navigators.di.fc.ul.pt).

He participated and contributed to several national and international projects such as, Delta-4, DINAS-DQS, Codicom, DEAR-COTS and HIDENETS. He was the field responsible of Projecto Codicom. More recently, he was a researcher of Project FP7 KARYON (http://www.karyon-project.eu/), being responsible by the work package of design and development of wireless communication networks for control applications in safety-critical systems. He was the principal investigator (PI) of:

i) National projects, funded by Portuguese Foundation of Science and Technology (FCT):

- Project DARIO – "*Distributed Agency for Reliable Input/Output*", in cooperation with Instituto Superior Técnico, Portugal. – http://dario.di.fc.ul.pt;
- Project READAPT – "*Reconfigurability and Adaptability in Safe and Secure Multicore Architectures for Mixed-Criticality Applications*", in collaboration with GMV Portugal. http://www.navigators.di.fc.ul.pt/wiki/Project:READAPT;

ii) International projects, sponsored by the European Space Agency (ESA):

- Project AIR – "*ARINC 653 Interface in RTEMS*", in partnership with GMV Skysoft, Portugal. http://air.di.fc.ul.pt;
- Project AIR-II – "*ARINC 653 Interface in Space RTOS - Industrial Initiative*", in partnership with GMV Skysoft, Portugal and Thales Alenia Space, France – http://air.di.fc.ul.pt/air-ii/;

iii) Transnational cooperation projects:

- Project SAPIENT – "*Scheduling Analysis Principles and Tool for Time- and Space-Partitioned Systems*", (http://www.navigators.di.fc.ul.pt/wiki/Project:SAPIENT), 2012-2013, in cooperation with Lab-STICC, Université de Bretagne Occidentale, Brest, France;
- Project PROPHECY - "*Proactive Fault Tolerance for Time and Space Partitioning Hypervisors*", (http://www.navigators.di.fc.ul.pt/wiki/Project:PROPHECY), 2012-2013, in cooperation with the Hasso-Plattner-Institut, University of Potsdam, Germany.

Currently, he is the principal investigator (PI) of the transnational cooperation project,

- **Project NORTH** – "*Non-intrusive Observation and RunTime verification of cyber-pHysical systems*", 2017-2018, in cooperation with Lab-STICC UMR CNRS 6285, Université de Bretagne Occidentale, Brest, France.

Currently, he is also member of the Management Committee of COST Action IC1402 - Runtime Verification beyond Monitoring (ARVI).

José current research interests include: definition and design of fault-tolerant and real-time distributed systems; models and architectures for time- and event-driven systems; models and architectures for mixed-criticality embedded systems, using time- and space-partitioning, and its application in the aerospace and automotive domains; wired and wireless sensor and actuator networks for distributed control mixed-criticality applications; composability in real-time systems; definition and design of real-time operating system kernels; delay-tolerant networks, namely its applicability to wireless sensor networks and to interplanetary/deep space missions; and, in recent times, drawn from the challenges found in the READAPT project, runtime verification in real-time embedded systems. He has served on the technical program committee of several national and international conferences. He has more than 80 publications in those areas. He is a member of the Ordem dos Engenheiros (Portugal), ACM and IEEE (and of several of its societies).

Publications (restricted to the area of runtime verification)

[1] A. Casimiro, I. Gouveia, and J. Rufino. "Enforcing Timeliness and Safety in Mission-Critical Systems". In Proc. of the 22nd International Conference on Reliable Software Technologies, Ada-Europe 2017. Springer, Vienna, Austria, June 2017. (accepted for publication).

[2] I Gouveia and J. Rufino. "Enforcing Safety and Security trough Non-Intrusive Runtime Verification". In Proc of the 1st Workshop on Security and Dependability of Critical Embedded Real-Time Systems. IEEE, Porto, Portugal, Dec. 2016.

[3] J. Rufino and I. Gouveia. "Timeliness Runtime Verification and Adaptation in Avionic Systems". In Proc. 12th workshop on Operating Systems Platforms for Embedded Real-Time applications (OSPERT). Euromicro, Toulouse, France, 14–20, Jun. 2016.

[4] J. Rufino. "Towards integration of adaptability and non-intrusive runtime verification in avionic systems," SIGBED Review, vol. 13, no. 1, Jan. 2016, (Special Issue on 5th Embedded Operating Systems Workshop).

[5] R. C. Pinto, J. Rufino. "Towards Non-invasive Run-time Verification of Real-Time Systems" Proceedings of the Work-In-Progress Session of the 26th Euromicro Conference on Real-Time Systems (ECRTS 2014), Madrid, Spain, July 2014.

Other Selected Publications

[1] J. Rufino, J. Craveiro, P. Verissimo, “Architecting Robustness and Timeliness in a New Generation of Aerospace Systems,” in Architecting Dependable Systems VII, A. Casimiro, R. de Lemos, C. Gacek, Eds., Berlin Heidelberg: Springer-Verlag, 2010.

[2] J. P. Craveiro, J. Rufino, “Uniform Multiprocessor Periodic Resource model”, in 4th International Real-Time Scheduling Open Problems Seminar (RTSOPS 2013), Paris, France, Jul. 2013.

[3] J. Craveiro, J. Rufino, F. Singhoff, “Architecture, Mechanisms and Scheduling Analysis Tool for Multicore Time- and Space-Partitioned Systems,” *ACM SIGBED Review*, Vol. 8, No. 3, pp. 23-27. September 2011. ISSN:1551-3688. Special issue of the 23rd Euromicro Conference on Real-Time Systems (ECRTS 2011) — WIP session, Porto, Portugal, July 2011.

[4] J. L. R. Souza, J. Rufino, “Low Level Error Detection For Real-Time Wireless Communications”, in 13th International Workshop on Real-Time Networks 25th Euromicro Conference on Real-Time Systems (RTN 2014), Madrid, Spain, Jul. 2014.

[5] J. L. R. Souza and J. Rufino, “Analysing and Reducing Network Inaccessibility in IEEE 802.15.4 Wireless Communications”, in 38th IEEE Conference on Local Computer Networks (LCN 2013), Sydney, Australia, Oct. 2013.

[6] J. L. R. Souza, J. Rufino, “Towards Resilient Real-Time Wireless Communications”, in 25th Euromicro Conference on Real-Time Systems (ECRTS 2013), Paris, France, Jul. 2013.

[7] M. Coutinho, J. Rufino, C. Almeida, “Response Time Analysis of Asynchronous Periodic and Sporadic Tasks Scheduled by a Fixed-Priority Preemptive Algorithm”, Proceedings of the EUROMICRO Conference on Real-Time Systems (ECRTS 2008), Prague, Czech Republic, July, 2008.

[8] J. Rufino, P. Veríssimo, G. Arroz, “Node Failure Detection and Membership in CANELy”, in Proceedings of the IEEE International Conference on Dependable Systems and Networks (DSN03). San Francisco, California, USA, June 2003., Jun. 2003.

[9] J. Rufino, P. Veríssimo, G. Arroz, “A Columbus´ Egg Ideia for CAN Media Redundancy”, Digest of Papers of the 29th IEEE International Symposium on Fault-Tolerant Computing Systems (FTCS 29). Madison, Wisconsin, USA. June 1999.

[10] J. Rufino, P. Verissimo, G. Arroz, C. Almeida, L. Rodrigues, “Fault-Tolerant Broadcasts in CAN”, in Digest of Papers, The 28th IEEE International Symposium on Fault-Tolerant Computing (FCTS 28). Munich, Germany, June, 1998., Jun. 1998.

[11] P. Verissimo, J. Rufino, L. Ming, “How hard is hard real-time communication on field-buses?”, in Digest of Papers, The 27th International Symposium on Fault-Tolerant Computing. Seattle - USA, July 1997. IEEE, Jul. 1997.

[12] P. Verissimo, L. Rodrigues, J. Rufino, “The Atomic Multicast protocol (AMp)”, in DELTA-4 - A Generic Architecture for Dependable Distributed Computing, David Powell, Eds., ser. ESPRIT Research Reports, Springer Verlag, Nov. 1991, ch. 10, pp. 267–294.