Laurent George

He received a master on Computer Science and Networks from ESIGETEL (Fontainebleau, France), in 1992, an engineering school in telecommunication and networks. He received his Ph.D in Computer Science from the University of Versailles, France, in 1998. The Ph'D subject is on the dimensioning of distributed real-time systems. He received his authorization to supervise research (Habilitation in French) in Nov 2008. The research report presented was on the temporal robustness of embedded and distributed real-time systems.

Career to Date:

He is an assistant professor at the University of Paris 12, teacher in network and embedded systems. He his at the head of the research department of ECE, an engineering school in Paris, specialized in Computer Science and Networks (www.ece.fr/en). He has been involved in several Master of Research programs and several engineering schools in Computer Science (CNAM, University of Marne la Vallée, ESIEE, ESIGETEL, University of Versailles, …).

Publications/Articles:

Until 2008, he has published more than 20 international journals and more than 50 international conferences in the area of real-time embedded and distributed systems.

Conference/Journal Reviewer and Committee Member:

- Publicity chair and scientific committee member of Real-Time Networks and Systems (RTNS'08), October 16-17, 2008, Rennes, France. Sponsored by IEEE-France.
- Advisory committee member of the International Conference on Systems, published by IEEE Computer Society Press.
    - ICONS 2007, April 22 - 28, 2007 - Sainte-Luce, Martinique.
    - ICONS 2008, April 13-18, 2008 - Cancun, Mexico
- Advisory committee member of the International Conference on Networking, sponsored by IEEE, published by IEEE Computer Society Press.
    - ICN 2007, April 22 - 28, 2007 - Sainte-Luce, Martinique
    - ICN 2008, April 13-18, 2008 - Cancun, Mexico
- Technical program committee member of the International Conference on Networking and Services, published by IEEE Computer Society Press.
    - ICNS 2006, July 19-21, 2006, Silicon Valley, USA.
    - ICNS 2007, June 19-25, 2007 - Athens, Greece.
    - ICNS 2008, March 16-21, 2008 - Gosier, Guadeloupe
- Technical program committee member of the International Conference on Autonomic and Autonomous Systems, published by IEEE Computer Society Press.
    - ICAS'06, July 19-21, 2006, Silicon Valley, USA

    - ICAS'07, July 19-21, 2006, Silicon Valley, USA
    - ICAS 2008, March 16-21, 2008 - Gosier, Guadeloupe
- Technical program committee member of IEEE international conference on Self-Organization and Autonomic Systems in computing and communications :
    - SOAS'2006, Erfurt, Germany, 18 - 21 September 2006
    - SOAS'2007, 24-27, Leipzig, Germany, September 2007
- Technical program committee member of the International Workshop on Java Technologies for Real-time and Embedded Systems :
    - JRTES'06, Paris, 11-13 October 2006 (sponsored by IEEE-France)
    - JRTES'07, Vienna, Austria 26-28 September 2007 (Sponsored by ACM)
    - JRTES'08, Santa Clara, Sun Microsystems labs, USA 24-26 Sept. 2008
- Technical program committee member of the IEEE International Workshop on Factory Communication Systems (WFCS2008), May 20-23, 2008, Dresden, Germany.
- Reviewer for the IEEE International Symposium on Industrial Embedded Systems (SIES'2007 and SIES'2008).
- Reviewer for the IEEE Transactions on Industrial Informatics and for the Journal of European Research (JESA).

Industrial Partnership (some):

- He is involved in the Automative Computer Industry, specialized in the conception of automotive kernels (OSEK, AUTOSAR) and networks (CAN, Flexray). He has been involved in several research projects with Valeo Inc. and Vector Inc.
- He is involved with ST-Microelectronics Inc., Paris in a project on the problem of real-time dimensioning of multimedia applications for mobile phones.
- He is involved in Wireless Networks with a focus on Zigbee Networks with GDF-Suez Inc.

Research Interests:

My research activity focuses on the temporal robustness of hard real-time embedded and distributed systems. The intrinsic complexity of such systems requires particular analysis. The complexity in the case of embedded systems, comes from the development of advanced functionalities requiring high performing real-time systems based on complex micro-controllers. The complexity of distributed systems is associated to the will to develop modular reusable distributed architectures to reduce the cost of development (e.g. the AUTOSAR architecture in the automotive area). The underlying distributed used by an application must propose a good adequacy between the level of quality of service required by an application and the available quality of service at the network level. Such systems have high degrees of freedom and a high number of observable states. Average case dimensioning base on simulation or modelling tools are not enough. They are not able to grant that the specifications of a system will always be granted for all possible states. An exhaustive analysis of all the states is hardly possible due the complexity of the system.

I am interested in the approaches that permits to grant the respect of hard timeliness constraints associated to the treatment of tasks of an application. Those temporal

constraints are specified with worst case completion deadlines imposed for every task. Hence, any solution to a real-time scheduling problem must prove the existence of bounds (worst case response times of tasks, worst case end-to-end communication delays. We do not assume any hypothesis on the times where events occur in the system. We consider a worst-case analysis to grant the respect of the timeliness constraints. A real-time system, valid in worst-case is valid for any possible configuration.

In this context, temporal robustness aims at studying the ability to introduce more flexibility in the conception of a real-time system, to characterize the maximum acceptable deviations of task parameters still preserving the timeliness constraints of the tasks. This research can be applied to the problem of real-time dimensioning of either an embedded system or to distributed wired or wireless system.

He has supervised eight Ph'D in this research area and more than twenty Master of research internship.

Memberships:

Member: IEEE member, IEEE-France, Computer section, board member,

He can be reached at:
lgeorge@ieee.org

More information about Laurent George can be found at:
http://www.ece.fr/~lgeorge