



SUMMER SCHOOL ON

“INTELLIGENT TRANSPORT SYSTEMS: DESIGN AND SAFETY”

3 – 6 July 2005

Pyrenées Mountains, Saint Lary, France

CONTENT OF LECTURES AND CV OF SPEAKERS AND AFFILIATIONS

Guy Boy, EURISCO International, France

Safety and human-centered design of safety-critical systems

Safety is freedom from accidents and human losses. Accidents are complex multi-causal events, most of the time impossible to predict. Therefore, it is hard to maintain safety. In my talk, I will try to show you how we can take into account safety in a human-centered approach to design. I will use my experience in the analysis, design and evaluation of aerospace systems. There are various issues that need to be discussed such as safety-driven usability and standards, toward a safety culture that enable the management of safety. Taking into account safety is a matter of developing and using methods and tools during the whole life cycle of a product. It starts with the analysis of the requirements and risks involved in the use of this (safety-critical) product. Both formative and summative evaluation play a significant role. We will see what kinds of human factors are essential to be taken into account such as workload, situation awareness and crew resource management. Finally, I will talk about experience feedback, in particular incident and accident investigation and reporting. We will discuss the relevance and possible adaptation of these concepts, methods and tools in the automotive sector.

Guy Boy is President of the European Institute of Cognitive Sciences and Engineering (EURISCO International). Engineer and psychologist, he received his PhD in Automation and System Design from the Ecole Nationale Supérieure de l'Aéronautique et de l'Espace, his “Habilitation à Diriger des Recherches” (Paris VI), and his Full Professorship Qualification in Computer Science and Psychology. Researcher at ONERA from 1977 to 1988, he was seconded to NASA-Ames from 1984 to 1986 in the Aerospace Human Factors Research Division. He joined NASA-Ames as the Leader of the Advanced Interaction Media group from 1989 to 1991. His research is in human-centered design and automation, the study of safety-critical systems, electronic documentation and knowledge management. He is the author of three books: Intelligent Assistant Systems (Academic Press, 1991), Cognitive Function Analysis (Ablex/Greenwood, 1998) and Cognitive Engineering (Hermes-Lavoisier, 2003). He has been a legal expert in aircraft accident investigations.

EURISCO International (European Institute of Cognitive Sciences and Engineering) is a private research institute specialized in Human Factors Research. Its shareholders are Airbus, Thales-Avionics and Aeroconseil Groupe. The objectives of EURISCO International are to provide expertise and support for European industry in the following areas: Cognitive systems engineering of applications that depend on human-machine interaction; the idea of human reliability and security are central to this theme; Specification and development of training and documentation needed to use interactive systems in a cost-efficient way in sectors where cognitive interaction is vital; Research on new communication technologies, in particular human-machine communication or human-human communication by means of computer technology; the idea of computer supported cooperative work is an integral part of this theme; Acquisition and elicitation of expertise with the aim of assembling a body of knowledge and know-how; corporate memory, new organizations, formalization of knowledge for design (in particular for the design of human-machine systems). EURISCO International's team has a broad experience in specialized domains such as aeronautics, car/automotive cockpit research, defense, telecommunication, industrial processes and documentation.