Ian Smith is Professor and Head of IMAC-Applied Computing and Mechanics Laboratory, Civil Engineering Institute at EPFL where he is involved in research, teaching, collaboration with industry, looking for funding, sitting on committees and running a lab. He has also been active in consulting related to monitoring structures, applications of information technology, structural design, evaluation and repair of existing structures and accident analysis in Europe, North America and Japan.

He completed his undergraduate work in Civil Engineering at the University of Waterloo, Canada in a four-month alternating study/industry cooperative program - finishing in 1979. This allowed him to work in structural design offices, a boundary-layer wind tunnel lab (University of Western Ontario) and for steel fabricators in Canada between 1974 and 1979. The British Government offered Smith a Commonwealth Scholarship in 1979 and he completed my PhD at the Engineering Department, University of Cambridge, UK in 1982.

Since then, he has been involved in research and teaching within three laboratories at EPFL. Up to 1991, he was at ICOM in the Civil Engineering Department where he continued work on measurement systems, fatigue and fracture mechanics in collaboration with industry. From 1991 to 1996, he was in the Artificial Intelligence Laboratory in the Computer Science Department where he focused on AI applications for the construction industry. In 1996, he moved back to the Civil Engineering Department and was nominated "Extraordinary Professor" in 1999. He took over the direction of the Applied Computing and Mechanics Laboratory (IMAC) in November 2000. From 2001 to 2006, he was Chair of the Structural Engineering Institute within the School of Architecture, Civil and Environmental Engineering. In 2004, Smith was elected to the Swiss Academy of Engineering Sciences and received the Computing in Civil Engineering Award from the American Society of Civil Engineers in 2005.

Opportunities to measure structures have increased significantly with the development of new sensors and full-field measurement technologies. Data acquisition and storage is no longer a bottleneck thanks to computing equipment that is now cheap, robust, efficient and connected. However, our capacity to interpret data has not evolved in the same way.

The first part of this talk will present two projects in the area of structural identification. Our priority is to find the real behavior of structures in order to facilitate their management in service. Even management of non-damaged structures is supported more effectively because the use of design models - unavoidable in the absence of measures - results in predictions that are often very far from reality. Two research subjects, with and without behavior models, will be presented along with recent results. The second part of the talk is on active structures. A description of a new project on a deployable active structure that is currently under construction in our laboratory will be discussed. Our research thus far has been able to minimize the number and cost of actuators that are necessary for efficient deployment.