Knowledge Discovery and Decision Systems in Biomedicine

The vast amount of data generated by biomedical devices or retrieved from archives motivates the development of tools that are able to handle, analyse and make use of it in a computer-supported fashion. On the one side, data mining has become a popular and effective way of discovering new knowledge from large and complex data sets, and particularly, medical data sets. Advances in data mining research and technology have made it possible to solve many interesting problems in medical diagnostics and healthcare.

On the other side, computer-based systems supporting the medical decisions have got many research efforts. These systems can pursue different objectives, such as pre-selecting the cases to be examined, serving as a second reader or working as a tool for training and education of specialized medical personnel. Currently, the development of versatile systems applicable to different working scenarios is a major issue. Indeed, they call for careful design of data processing methods as well as the definition of decision rules. To the same extent, the definition of performance evaluation criteria is mandatory to ensure that such systems work safely and profitably.

This special track brought together researchers in the multi-disciplinary area of knowledge discovery and computer-based decision systems in biomedicine, and provided a forum for the presentation and discussion of their research activities.