

Prof. Marko Bohanec, Ph.D. Jožef Stefan Institute, Slovenia

Project PD_manager: Developing Decision-Support Models for Parkinson's Disease Management

Summary:

Parkinson's disease (PD) is a degenerative disorder of the central nervous system that causes numerous symptoms, such as tremor, rigidity, impulsivity, and depression. PD requires a long-term, interdisciplinary disease management. The EU Horizon2020 project PD_manager (<http://www.parkinson-manager.eu/>, 2015–2017) has been aimed at developing a decision support system for PD management. In my lecture, I will first present an overview of the project in terms of its goals, overall organisation, contributing organisations and achieved results. Then I will focus on a specific problem of identifying situations in which the disease has progressed to the point that requires a change of medical therapy. For this purpose, we have developed a series of decision-support models that suggest when and how to change the therapy, for instance, increase the dosage of the current medicament or change the current medicament with another one. The models were developed by a combination of data mining and expert modelling approaches. I will describe the model-development process, present the models and assess their quality in terms of classification accuracy, transparency, correctness, and completeness.

Prof. Marko Bohanec CV

Marko Bohanec is a leading Slovenian researcher in the field of decision support models and systems. His background is in computer science. He works at the Department of Knowledge Technologies at the Jožef Stefan Institute, Slovenia. Also, he is a professor of computer science at the University of Nova Gorica, Slovenia. His research interests include decision making, decision analysis, decision support, decision modelling, artificial intelligence, expert systems, machine learning and data mining. He is one of the pioneers of qualitative multi-attribute modelling, which combines decision analysis and artificial intelligence to support people in making complex decisions. He is a co-author of the method DEX and computer program DEXi, which are used for developing qualitative hierarchical decision models. In the last decade, he has been involved as a decision support expert in European projects on the production, distribution, and quality control of food and feed (projects ECOGEN, SIGMEA, Co-Extra, DECATHLON), disease management in health-care (PD_manager, HeartMan) and nuclear safety (NARSIS).