Doctoral School of Information and Biomedical Technologies Polish Academy of Sciences

Subject
Interactive granular computing

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Project Description

The research aims to develop computing models and reasoning about computations towards, e.g., prediction of changes of the properties of complex phenomena in intelligent systems. Such systems, according to many predictions, will revolutionize our lives. The complex phenomena mentioned here appear in many fields of applications, and are inextricably linked to rapidly developing fields such as Data Science, Internet of Things, Wisdom Web, Smart Cities, and Smart Grids. It turns out, however, that the wonderful methods of phenomena modeling that have worked out over the centuries fail in the case of complex phenomena. The great challenge on the way to overcome the difficulties is to develop new computing models in symbiosis with modern digital technology. One of the candidates is a computing model based on the so-called *interactive granular computations* that can be treated, in a sense, as the 'core' of intelligent systems. It is worth mentioning that research on computing models should also bring a deeper explanation of the reasons for the effectiveness of certain models, e.g., deep neural networks and open perspectives for discovering even better models. The research will be carried out at IBS PAN in cooperation with the Center for Digital Science and Technology at UKSW. It should lead to the development of new computing models whose effectiveness will be verified in innovative projects.

Bibliography

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