Abstracts of Doctor Habilitatus Thesis

Title: Intelligent interfaces for computer algebra systems
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The dissertation is devoted to the investigation of human–computer interaction modalities in computer algebra systems and developing of methods for intelligent interfaces creation for such systems.

The principles of interfaces design are investigated, intelligent interfaces and interfaces for computer algebra systems are classified; the intelligent interfaces features are described. Some aspects of natural language usage in intelligent interfaces are revealed.

The problem of computational lexicon development for inflectional languages is investigated. A notion of inflectional grammar is proposed; it permits to describe the inflexion process in the case when the inflexion model is known. This grammar was applied to formalize the inflexion process in Romanian. An algorithm of the morphological models ascertainment for the cases when the corresponding models are not known is proposed.

According to the proposed methods (static and dynamic ones) a computational lexicon containing about 1 million words was elaborated. It was used for developing of several applications.

A number of methods to implement intelligence features in interfaces for computer algebra systems are proposed. They include problems interception from the user, adaptation to his preferences, error prevention.