

## LIST ABSTRACTS

### *AUTOMATIC SYNTHESIS OF SIMPLE PROLOG PROGRAMS*

In the early days of computers, the problem of software systems productivity came to surface. Automatic programming (AP) is one of the techniques that have been developed to overcome this problem. It provides computer support for the software production. AI technology introduced a fundamental change in the concepts of AP, where the latter has become one of the AI applications.

The aim of this research is to study the main principles of automatic program synthesis which is the more fruitful approach to AP, and investigating the ways to design and implement a system for that purpose.

A prototype automatic program synthesis system called APPS is designed to synthesize an applicative simple Prolog programs by transforming logically formed constructs that appear close to the way people think into more executable statements. The APPS system is implemented, by using Turbo Prolog version 2.0 on IBM compatible PC, as five separated modules.

In general, AP systems are restricted to a specific class of problems, so the proposed system is initially designed to work with List Processing problems as its main domain, then it has been applied to simple matrix problems as another domain by only changing the contents of the knowledge-base module.

Consequently, the research established a general structure for the automatic program synthesis systems and initiated an idea of the Expert Systems Shell in AP.

*System Design Considerations*

Abstract :