

Improving Pen-Based Mathematical Interfaces

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Abstract

Pen-based user interfaces offer tantalizing potential for mathematical software systems. In contrast to normal text, entering and editing mathematical formulae with a digital pen can be much more natural than using a keyboard. Machine recognition of mathematical handwriting, however, is more complex than recognizing natural language text. In this context it is necessary to deal with a vast array of similar symbols and the analysis of the two-dimensional syntactic structure of formulae.

This talk outlines our work in this area. We describe our architecture for a mathematical handwriting component that can be embedded in various applications. These include computer algebra systems, such as Maple, and document processing applications, such as Microsoft Word. We describe the problem of mathematical character recognition and detail how recognition rates can be enhanced using data derived from the analysis of digital libraries.