On contour representation of two dimensional patterns

I. T. BANU-DEMERGIAN and G. STEFANESCU

ABSTRACT

Two-dimensional patterns are used in many research areas in computer science, ranging from image processing to specification and verification of complex software systems (via scenarios). The contribution of this paper is twofold. First, we present the basis of a new formal representation of two-dimensional patterns based on contours and their compositions. Then, we present efficient algorithms to verify correctness of the contour-representation. Finally, we briefly discuss possible applications, in particular using them as a basic instrument in developing software tools for handling two dimensional words.

REFERENCES


Received: 18.12.2013; In revised form: 10.12.2014; Accepted: 17.12.2014
2010 Mathematics Subject Classification. 68Q10, 68Q45, 68R01.
Key words and phrases. Regular expressions, two-dimensional patterns, contours, structured interactive programming, formal methods.
Corresponding author: I. T. Banu-Demergian; th_iulia84@yahoo.com
DEPARTMENT OF COMPUTER SCIENCE
UNIVERSITY OF BUCHAREST, ROMANIA

E-mail address: iulia.banu@fmi.unibuc.ro
E-mail address: gheorghe.stefanescu@fmi.unibuc.ro