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SOURCE TO SOURCE COMPILER FOR THE AUTOMATIC PARALLELIZATION OF JAVASCRIPT CODE

Tesis para optar el Título Profesional de Ingeniero de Sistemas

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Abstract:
This work focuses on the development of a source-to-source compiler for the automatic parallelization of JavaScript code. The proposed compiler transforms the input code to an AST (Abstract syntax tree). Afterward, we applied a dependence analysis, followed by fusion and fission techniques. As a later part, new portions of code are inserted to parallelize specific sections of the original program. From the modified AST obtained, we return a new JavaScript code. From our experimentations, we can conclude that our solution reduces the execution time by parallelizing loops, but only if they do not use significant amounts of data, and the complexity of them is not concentrated in a small number of iterations.

Keywords— JavaScript, automatic parallelization, code optimization, compilers.

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