Doctoral programme in Computer Science MAP – i
PhD Thesis proposal

TITLE
Parallel computing in semi-infinite programming

KEYWORDS:
Semi-infinite programming, parallel computing.

SUMMARY
Up to now, only sequential methods for solving semi-infinite programming problems are available in the literature. The main objective of the project is to use a parallel computing framework to develop a parallel algorithm and software to solve semi-infinite programming problems with high accuracy.

DESCRIPTION
Semi-infinite programming problems appear in many engineering areas, such as computer aided design, air pollution control and production planning. To solve this kind of problems there are three main classes of sequential methods: reduction, discretization or exchange methods.
Discretization type methods are the simplest of all but find solutions with low level of accuracy [4]. In the class of sequential reduction methods, all the local solutions of the so-called lower-level problem [1-3,5] have to be identified. This is a very demanding and time-consuming procedure since the multiple solutions have to be evaluated sequentially. Parallel computing seems to be a promising strategy to the exploration of the solution space for multiple optima in order to yield an efficient and fast algorithm.

References
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