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Code generation for large scale applications

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Stellingen

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Code Generation for Large Scale Applications

van

Paul van der Mark

1. The use of a high-level specification language combined with an automatic code generator reduces the development and maintenance time for numerical models compared to hand writing the program, while no trade-off is made with respect to the performance. [this thesis]
2. A rewriting system based on algebraic transformation rules can be powerful enough to generate code for certain types of implicit equations. [this thesis]
3. Using Automatic generation of program code instead of hand-writing the code for complex multi-dimensional equations using interpolation methods is the preferred way, since the resulting code is too complex to optimize by hand. [this thesis]
4. It is not always sufficient to optimize numerical methods, when the program spends a large proportion of its execution time exchanging data between processors on a parallel system. [this thesis]
5. Development in compiler technology has come to a point where it can better be described as an engineering task and less as scientific research.
6. As long as biology and computer science researchers do not speak each others language, bio-informatics will stay a niche field dealing with large taxonomic databases and visualization applications.
7. A lot of scientists are not interested in methods that can speed up their models by tens of percent, since the computers they buy in one a half year will execute their model almost twice as fast.
8. The Internet sadly shows that Oscar Wilde is completely outdated with his quote “It is a very sad thing that nowadays there is so little useless information”.
9. George W. Bush and his brother Jeb are a good example that intelligence is not a genetic property.
10. Cycling to work is a potential solution for solving a lot of environmental problems and health problems.