

# Type Inferencing and MATLAB to Modelica Translation

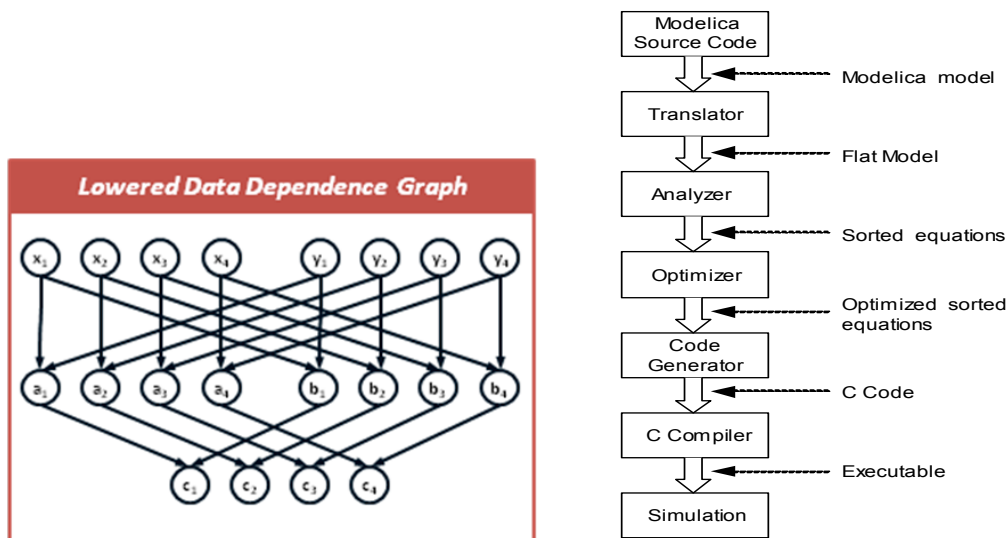
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PELAB – Programming Environment Lab, Institutionen för Datavetenskap  
[www.openmodelica.org](http://www.openmodelica.org)

At PELAB, together with the Open Source Modelica Consortium (an international open source effort supported by 38 organizations, see [www.openmodelica.org](http://www.openmodelica.org)) the OpenModelica environment including the OpenModelica Compiler (OMC) of the Modelica language including MetaModelica extensions is developed. Modelica is a high level language supporting equations and matrix operation. The development is open source.

MATLAB is a proprietary dynamically typed language for scientific computing and matrix computation whereas Modelica is an open standard and a statically strongly typed language for equation-based modeling, scientific computing and matrix computations.

The goal of this master thesis project is to design and implement a MATLAB to Modelica translator including type inferencing techniques to infer types in dynamically typed MATLAB programs to be used in statically typed Modelica programs. This also includes inferencing shapes of array types. The design and implementation approach can with a high probability be based on the McFor system [1], which is uses type inferencing and translation to Fortran95 which is another statically typed language with good support for arrays.

This master thesis project requires knowledge and interest in compiler construction and advanced programming.



## References:

- [1] Jun Li. Mcfor: A MATLAB to Fortran95 Compiler. Master Thesis, McGill University, 2009. [http://www.sable.mcgill.ca/mclab/matlab\\_fortran.html#AV](http://www.sable.mcgill.ca/mclab/matlab_fortran.html#AV)
- [2] Peter Fritzson, et al. OpenModelica 1.8 Users Guide, November 2011, <http://www.openmodelica.org/index.php/home/userdocumentation>.