

Int. Modelica Conf. 2021 Paper Title

Author Name¹ Author Name¹ Author Name²

¹Department, University, Country, {name1,name2}@university.org

²Company, Country, name3@company

Abstract

This template shows the guidelines on how to create a paper to be submitted to the International Modelica Conference. Please visit <https://github.com/modelica/conference-templates> if there are any questions or suggestions regarding this template.

Keywords: keyword1, keyword2

1 Introduction

In the following section, short style guidelines are given.

1.1 Title and Authors

Words should be capitalized in the title, e.g., “This is an Example of a Correct Title”. The author information should at least include name, affiliation (department, university, country). Addresses and emails are optional but strongly recommended.

1.2 Abstract and Keywords

The abstract should be written as one paragraph. It is not recommended to exceed 150 words.

Appropriate keywords describing the content of the paper should be supplied as a comma separated list.

1.3 Fonts

For all standard body text *Times New Roman* with regular font style, and font size 10.5pt should be used. To emphasize a text or a word, use *italic font style*. For verbatim text embedded in running text, including code fragments, use the style `texttt` with font Courier New with size 9.5pt should be used (1pt smaller than running text). You can use the provided `\code` macro.

For separate Modelica code examples, use the style font size 9 pt. Similar for non-Modelica code examples. For formatting Modelica code this template used the listings definitions from <https://github.com/modelica-tools/listings-modelica> (included in the package). Code listings are cross-referenced as for example Listing 1.

Listing 1. A while loop

```
while x<20 loop
  x := x+y*2;
end while;
```

1.4 Lists

Bullets should be created with the `itemize` environment:

- The first text item.
- The second text item.

Numbered items should be created with the `enumerate` environment:

1. The first text item.
2. The second text item.

2 Figures

Figures should be numbered and include a description text. All figures should be referenced within the body text using the capitalized word “Figure” followed by the figure number. For example, Figure 1 shows a figure located inside one column and Figure 2 illustrates how a figure can span over two columns. You should use vector graphics such as (SVG, EPS, PDF, EMF) rather than raster images such as (JPG, PNG) whenever possible. Photographs naturally should be raster images. Rather than using print screen you can often use the “Print” option of software to produce a PDF and especially plots can often be printed or exported to tools that produce vector graphic plots. If you need to convert vector images between different formats, *Inkscape* (2020) is very handy.

3 Equations

Equations should be numbered on the right side, such as:

$$a_1 = b_1 + c_1 \quad (1)$$

$$a_2 = b_2 + c_2 - d_2 + e_2 \quad (2)$$

Equations are cross-referenced as Equation 1 and Equation 2.

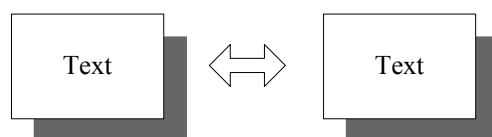


Figure 1. An example of a figure that fits into one column.

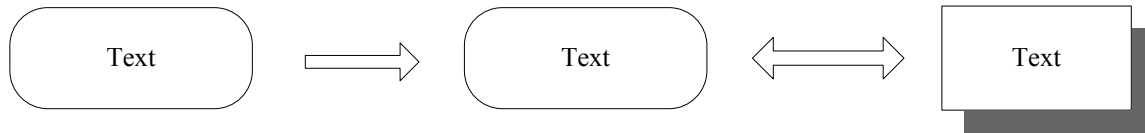


Figure 2. Another example of a figure that spans over two columns.

4 Tables

Table 1 illustrates the use of tables. It uses the `booktabs` package which provides improved typesetting of tables and `numprint` for the thousands separator.

Table 1. Sizes of compiler phases, lines of code.

<i>Compiler Phase</i>	<i>Lines</i>
FrontEnd	92,192
BackEnd	29,190
Code generation	8,957
<i>Total size</i>	<i>130,339</i>

5 Additional Meaningless Text

This section contains additional text to bring the example length to three pages

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6 Bibliographic References

The bibliographic reference list are shown at the end of the paper; starting with an unnumbered heading “References”. The list of references should be sorted in alphabetic order according to the first author’s surname. The first author’s name is printed surname first and subsequent authors are printed with the first name first.

Citations are stated within the body text using the name of the reference enclosed within parentheses, e.g., (Pantelides 1988). If more than one reference is cited at the same place, the list should be sorted, separated by semicolons and within parentheses, e.g., (Duff and Reid 1978; Pierce 2002; Plotkin 1981). It is also possible use the textcite command to include a reference more naturally in the text: Pantelides (1988) wrote something interesting in his paper. If there is a DOI for the reference, use it instead of URLs in the bibliography.

Citations for relevant Modelica language specifications (MLSs) are provided as MLSv32r2 (Modelica Association 2013), MLSv33r1 (Modelica Association 2014), and MLSv34 (Modelica Association 2017).

All entries in the reference list should be cited in the manuscript.

In order to populate the bibliography with different kinds of entries to show how they should be printed, here are some additional citations:

- A book (Kernighan and Ritchie 1988).
- A conference paper (Colaço and Pouzet 2003).
- A couple of fake PhD, MSc, and BSc thesis (Doe 2012; Doe 2007; Doe 2005).
- A paper with very many authors (Fritzson et al. 2020).

Acknowledgements

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References

- Colaço, Jean-Louis and Marc Pouzet (2003-10). “Clocks as First Class Abstract Types”. In: *Third International Conference on Embedded Software (EMSOFT’03)*. Vol. 2855. Lecture Notes in Computer Science. Springer, pp. 134–155. DOI: 10.1007/978-3-540-45212-6_10.
- Doe, John (2005). “A somewhat catchy title”. Bachelor’s thesis. Fooland University, Department of Computer Science. URL: <https://fooland.university/cs/doe/bsc.pdf>.
- Doe, John (2007). “A catchy title”. Master’s thesis. Fooland University, Department of Computer Science. URL: <https://fooland.university/cs/doe/msc.pdf>.
- Doe, John (2012). “A really catchy title”. Doctoral dissertation. Fooland University, Department of Computer Science. DOI: xxx-yyy.
- Duff, Iain S. and John K. Reid (1978). “An Implementation of Tarjan’s Algorithm for the Block Triangularization of a Matrix”. In: *ACM Transactions on Mathematical Software* 4.2, pp. 137–147. DOI: 10.1145/355780.355785.
- Fritzson, Peter et al. (2020). “The OpenModelica Integrated Environment for Modeling, Simulation, and Model-Based Development”. In: *Modeling, Identification and Control* 41.4, pp. 241–295. DOI: 10.4173/mic.2020.4.1.
- Inkscape (2020). URL: <https://inkscape.org/> (visited on 2020-11-23).
- Kernighan, Brian W. and Dennis M. Ritchie (1988). *The C programming language*. 2nd ed. Prentice Hall. ISBN: 0-13-110362-8.
- Modelica Association (2013-07). *Modelica – A Unified Object-Oriented Language for Systems Modeling. Language Specification Version 3.2 Revision 2*. Tech. rep. Linköping: Modelica Association. URL: <https://www.modelica.org/documents/ModelicaSpec32Revision2.pdf>.
- Modelica Association (2014-07). *Modelica – A Unified Object-Oriented Language for Systems Modeling. Language Specification Version 3.3 Revision 1*. Tech. rep. Linköping: Modelica Association. URL: <https://www.modelica.org/documents/ModelicaSpec33Revision1.pdf>.
- Modelica Association (2017-04). *Modelica – A Unified Object-Oriented Language for Systems Modeling. Language Specification Version 3.4*. Tech. rep. Linköping: Modelica Association. URL: <https://www.modelica.org/documents/ModelicaSpec34.pdf>.
- Pantelides, Constantinos C. (1988). “The Consistent Initialization of Differential-Algebraic Systems”. In: *SIAM Journal on Scientific and Statistical Computing* 9.2, pp. 213–231. DOI: 10.1137/0909014.

- Pierce, Benjamin C. (2002). *Types and Programming Languages*. The MIT Press. ISBN: 0-262-16209-1.
- Plotkin, Gordon D. (1981). *A Structural Approach to Operational Semantics*. Tech. rep. Department of Computer Science, University of Aarhus.