Imperial College London

Final Report

Self-Organising Multi-Agent Systems

Department of Electrical and Electronic Engineering
Imperial College London

SOMAS Class 2021-2022

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Lecturer

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Abstract

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Contents

1 Introduction

In this section, we introduce useful basic functions of Latex.

1.1 Sections, Subsections, and Labels

This Latex document is organized in sections (\section{your_section_title}),

subsections (\subsection {your_subsection_title}) and

subsubsections (\subsubsection{your_subsubsection_title}).

You should always label your sections by using \label{your label}. If you have labels, you can refer to the corresponding section using \Cref{your_label}.

1.2 Images

Images are inserted using for example:

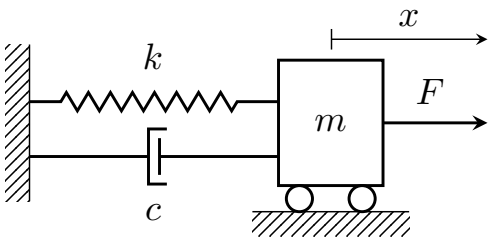
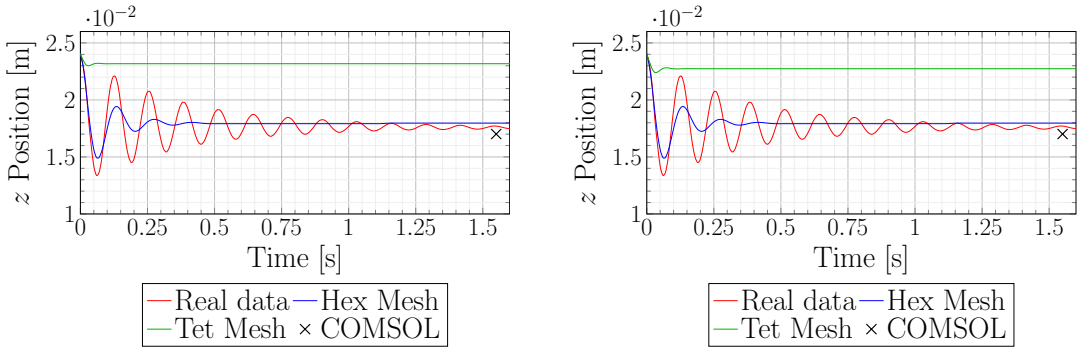


Figure 1: Mass-Spring-Damper model.

The command "htb" is here to express our priorities in the positioning of the image: h=here, t=top, b=bottom. Latex will automatically try to insert the image where it is the most "clean". However, you can override Latex' choices by replacing "htb" by "H".

For two plots in the same figure, you can use



(a) Case A-1

(b) Case A-2

Figure 2: Simulations results and comparison between the Real data, the Hex Mesh, the Tet Mesh and the COMSOL static solution.

1.3 Tables

The best way to create tables is to use an online Latex table creator: https://www.tablesgenerator.com/. Here is an example:

Case	DOFs	Type of mesh	Thread number	Time step	Average fps
AC2	10416	Hex	1	0.01	0.208
AC2	10416	Hex	2	0.01	0.330
AC2	10416	Hex	4	0.01	0.450
AC2	10416	Hex	8	0.01	0.507
AC2	10416	Hex	16	0.01	0.508

Table 1: Influence of the number of threads on the average fps value.

1.4 Equations

There are multiple ways to insert mathematical symbols or expressions in latex. For in-text you can use the dollar symbol as $\boldsymbol{q} = \boldsymbol{q}(t) \in \mathbb{R}^{3N}$.

For equation, we suggest using the following syntax:

$$\min_{\boldsymbol{q}_{i+1}} \left\{ \frac{1}{2h^2} ||\boldsymbol{M}^{\frac{1}{2}}(\boldsymbol{q}_{i+1} - \boldsymbol{y}_i)||_2^2 + \sum_e \frac{w_e}{2} ||\boldsymbol{G_e}\boldsymbol{q}_{i+1} - \boldsymbol{z}_e^*(\boldsymbol{q}_{i+1})||_2^2 \right\} \tag{1}$$

You should label your equations, so that you can refer to them as Equation (1).

1.5 References

References are taken from your ".bib" file. This document has to be include in the "main.tex" file. Every entry of the bib file has a specific name. Knowing this name, you can cite the reference using [Bouaziz et al., 2014], Bouaziz et al. [2014] or Bouaziz et al. [2014].

2 Another Section

2.1 Another Subsection

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3 Conclusion

Conclusion section.

4 Future Work

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A Supplementary Material

Supplementary Material section.

References

Bouaziz, S., Martin, S., Liu, T., Kavan, L., and Pauly, M. (2014). Projective dynamics: Fusing constraint projections for fast simulation. *ACM Transactions on Graphics*, 33(4):1–11.