Control Challenges: Solutions

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# 1. Introduction

## 1.1 What is this?

This is a collection of write ups on how to solve the various problems presented by [Github user](https://janismac.github.io/ControlChallenges/) “Janismac”.

[Open Simulation](https://pages.icpmol.es/ControlChallenges/index.html?target=TutorialBlockWithFriction&code=bGV0IEtwID0gMzM3OwpsZXQgS2QgPSA2NDsKZnVuY3Rpb24gY29udHJvbEZ1bmN0aW9uKGJsb2NrKQp7CiAgcmV0dXJuIC0oIGJsb2NrLnggKiBLcCArIGJsb2NrLmR4KktkKTsKfQ==)

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| --- |
| Tip with Title |
| This is an example of a callout with a title. |

# 2. Block With Friction

Position Control with friction. Using Pole Placement + PD.

## 2.1 State Space representation

We can convert the set of ODE into a state space representation. The final bode plot of the block position is:

There is a slight difference between the lsim simulation and the FMU simulation. I need to recheck some stuff.

[Open Simulation](https://pages.icpmol.es/ControlChallenges/index.html?target=TutorialBlockWithFriction&code=bGV0IEtwID0gMzM3OwpsZXQgS2QgPSA2NDsKZnVuY3Rpb24gY29udHJvbEZ1bmN0aW9uKGJsb2NrKQp7CiAgcmV0dXJuIC0oIGJsb2NrLnggKiBLcCArIGJsb2NrLmR4KktkKTsKfQ==)