Enabling Multirotors to Perform Construction Tasks Using Swarm Algorithms

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Summary (English)

The goal of the thesis is to ...

Summary (Danish)

Målet for denne afhandling er at ...

Preface

This thesis was prepared at DTU Compute in fulfilment of the requirements for acquiring an M.Sc. in Engineering.

The thesis deals with ...

The thesis consists of ...

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Jens-Christian Finnerup

Acknowledgements

I would like to thank my....

Contents

Chapter 1

Introduction

In today's world, we increasingly rely on robotics to perform a wide range of tasks, with use cases ranging from complimenting, or even substituting, human labour in factories to more complex tasks such as automated areal photography. Though technology continues to improve, the use of robotics is often confined to within predictable environments, where machines are told what to do and when to do it. More recently though, as control algorithms improve, autonomous robots are starting to become a practical reality, with increasing ability self-plan and work unsupervised. As such we experience a paradigm shift, where robots are no longer limited to predictable and confined environments, but can act freely and adapt to changing circumstances.

As consequences of

- from supervised to unsupervised - from instructed to self planning - from ground-based to arial

1.1 Problem Description

1.2 Project plan

We note that the contents of the project plan is also something we would like to see in the introductory chapter of your thesis. In fact, you can reuse your final project plan (possibly extended) as the introduction. If you prefer to write an introduction from scratch, it is, of course, important that it is consistent with the final project plan.

Chapter 2

Methodology

2.1 Simulation construction

2.2 Experimentation

2.3 Validation

2.4 Optimisation

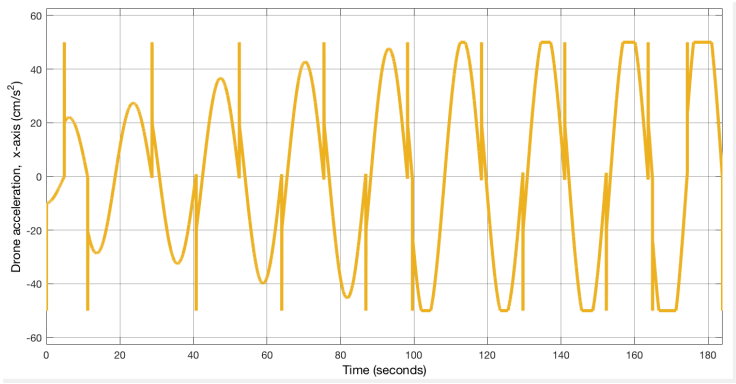

Figure 2.1: Acceleration of agent - without velocity limit

Chapter 3

Simulation

This was otherwise known as an impressive illusion, drone swarms have become of increasing importance as robotics enter our daily lives (as with the example of google car) but are not yet adapted with the intuition we have come to expect from the elements around us. Path planning and multi agent navigation are some of the aspects we expect from objects and people around us, who all for the purpose of path planning theory, act as individual agents

3.1 Simulation vs. Animation

3.2 Reality criterias

3.3 Assumptions on Physics

Chapter 4

Design

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