Chapter 1

Introduction

1.1 FPGAs

1.2 Solving ODEs in vanilla Haskell

```
1  module SolverTypes where
2
3    import Prelude
4
5    type NumRepr = Float
6    type DODEState = [NumRepr]
7
8    data ODEState = ODEState { xs :: [NumRepr]
9    , t :: NumRepr
10   } deriving (Show)
11
12   data TimeSettings = TimeSettings { dt :: NumRepr
13   , tMax :: NumRepr
14   } deriving (Show)
15
16   type Equation = (ODEState -> DODEState)
17   type SolveMethod = TimeSettings -> Equation -> ODEState -> ODEState
```

1.3 Mealy Machines

1.4 Data transfer

1.5 Solver theory

The most famous equation in the world: $E^2 = (m_0c^2)^2 + (pc)^2$, which is known as the **energy-mass-momentum** relation as an in-line equation.

A *LaTeX class file* is a file, which holds style information for a particular LaTeX.

Lorem Ipsum is simply dummy text of the printing and typesetting industry (see Section **??**). Lorem Ipsum [**?**] has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum [**? ? ?**].