Discrete Event Systems

Introduction

Why should you care?

Discrete Event Systems

Being based on natural phenomena,
Science is often explained by continuous variables

$F = G \frac{m_1 m_2}{r^2}$

Mechanics  Gravitation  Electrodynamics
Being based on natural phenomena, Science is often explained by continuous variables

Many complex systems are not continuous...

\[ F = G \frac{m_1 m_2}{r^2} \]

solved by differential equations

Mechanics  Gravitation  Electrodynamics

Somewhere inside Google datacenters

NYC subway system

computer systems  transportation systems
Those systems are determined by **discrete events**

- Customers requests
- Telephone calls
- Train arrivals
- Incoming data
- Equipment failures
- ...
There will be 3 lecturers in the course

Part I

Laurent Vanbever
Automata

Roger Wattenhofer
Stochastic process

Romain Jacob
Specification model

Part II

Week 1-4

Laurent Vanbever
Automata

Roger Wattenhofer
Stochastic process

Romain Jacob
Specification model

Part III

Week 5-9

Laurent Vanbever
Automata

Roger Wattenhofer
Stochastic process

Romain Jacob
Specification model

Week 10-13

Laurent Vanbever
Automata

Roger Wattenhofer
Stochastic process

Romain Jacob
Specification model

Course organization

Lectures
Thursday 2pm-4pm
@HG D 7.2

Exercises
Thursday 4pm-6pm
@HG D 7.2

Materials
https://disco.ethz.ch/courses/des/