Optimization and Simulation

Simulation laboratory overview

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École Polytechnique Fédérale de Lausanne EPFL

TRANSP-OR

ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

Aim

- Be familiar with a simulation approach
- Apply appropriate statistical techniques
- Use simulation based optimization (second part of the course)

How:

- Develop a simple queue simulation software through guided exercises (building blocks, MATLAB)
- Solve a real world problem (Project)

Laboratory organization

Group work

Simulation

5 laboratories

1 projects -> 1 presentation

Optimization

7 laboratories

Project expansion -> 1 presentation

Workload (plan in advance)

Date	Topic
21.02.2017	Introduction to simulation Random number generation Poisson process
28.02.2017	Discrete event simulation Statistical analysis and bootstrapping Variance reduction techniques
07.03.2017	Simulation project lab
14.03.2017	Simulation project lab
21.03.2017	Simulation project lab
28.03.2017	Presentation of simulation project
04.04.2017	Optimization lecture
11.04.2017	Optimization exercise
18.04.2017	No lecture - Spring break
25.04.2017	Markov Chain Monte Carlo method
02.05.2017	Optimization exercise
09.05.2017	Optimization project lab
16.05.2017	Optimization project lab
23.05.2017	Optimization project lab
30.05.2017	Presentation of optimization project

Overview

Group organization

Group	Name
1	Frérot Lucas Henri Galilée
	González Debada Ezequ
	Newton Taylor Howar
	Shim Hyunjin
	Stadler Paul Michae
2	Assouline Dan
	Giezendanner Jo
	Nolte Max Chri
	Suciu Raluca-Ancuta
	Tsouka Sofia
3	Agarwal Minu
	Bütün Hür Ebuzer
	Moccia Francesco Rafael Alberto
	Wang Zhengchao
	Zisis Eleftherios

Group	Name
4	Bellocchi Leonardo
	Codina Gironès Victor
	Pacheco Paneque Meritxell
	Teplukhina Anna
	Weil Charlotte Gisèle
	iovanni Claudia
	u
	Murali Krishna
	it Cagil
	ux Martin Jean Marie Joseph
	tone Raffaele
	strzebowska Maya Anna
	Kermani Maziar
	Wilding Bastian Valentin

TO BE DECIDED

Evaluation

Presentations of the two projects (simulation and optimization)

Group work

Class involvement

Quality of the code, it should:

- Work
- Be clean
- Be commented

Material

Sheldon M. Ross, 2013. *Simulation.* Academic Press