Introduction to the course Year 2019-20

Empirical Methods in Software Engineering
(01QTFIU)

`http://softeng.polito.it/EMSE/`

1

2

Who

- Luca Ardito
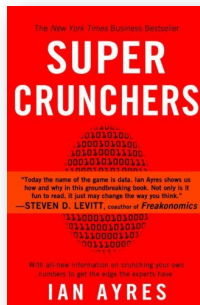- Marco Torchiano
  - Software Engineering group

- And what about you?
  - Who are you?
  - Which is your research topic?
  - What do you expect from this course?

3

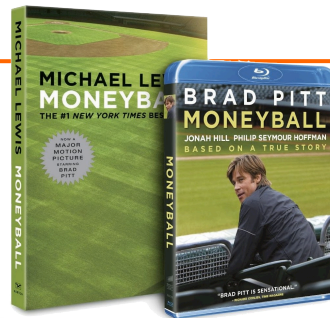# Motivation

- An increasing number of empirical studies are being conducted
- A common basic knowledge is required
  - To improve quality of studies
  - To design and discuss the studies
  - To understand and assess them

4

Not only Soft Eng

Sample results from a study

Elapsed

Algorithm

B	
A	

2.30 2.40 2.50 2.60 2.70 2.80 2.90 3.00
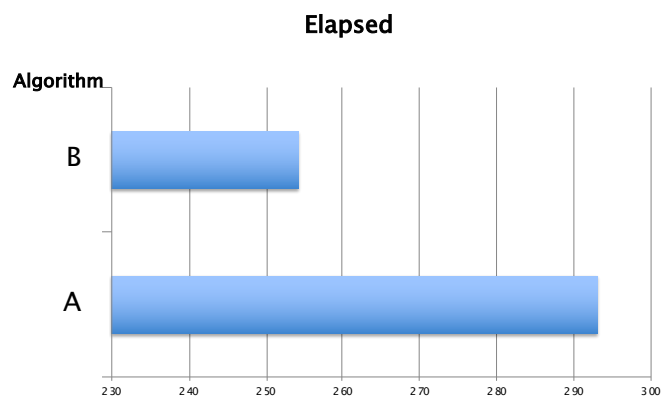
The actual data
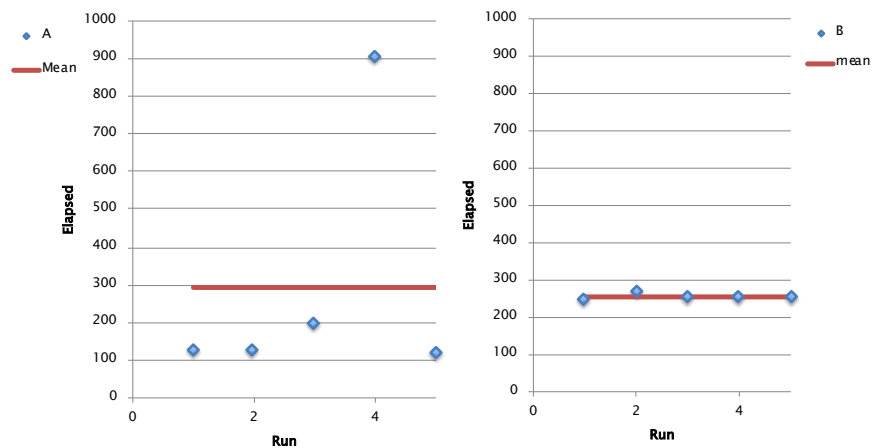
Required Skills

- Visualize data properly
- Design a valid experiment
  - Define proper measures
- Analyze data
- Assess existing literature evidence

+

Understand the epistemological basis

Topics

- Empirical Method
- Systematic Literature Review
- Experimental Process
- Measurement
- Data Analysis
- Data Visualization
- Surveys

Exam rules

- Alternatives
  - ◆ Dirtying your hands with an experiment
    - Collective experiment
    - Re-analyze data for a given experiment (pass)
  - ◆ Appraisal
    - Perform a SLR on a topic of your choice
    - Perform part of an SLR on a given topic (pass)
    - Characterize and assess empirical study
- Must be completed within July 2020

Schedule

1. Fri 13 Dec, 9:30   – Introduction to the course
2. Fri 20 Dec, 9:30   – Experimental process
3. Fri 10 Jan, 9:30   – Systematic Literature Reviews
4. Tue 14 Jan, 9:30   – Systematic Literature Reviews (Lab)
5. Fri 17 Jan, 9:30   – Software Measurement
6. Tue 21 Jan, 9:30   – Data visualization
7. Fri 24 Jan, 14:00   – Data analysis
8. Tue 28 Jan, 9:30   – Population Survey

SOftEng
http://softeng.polito.it