# Sergio Di Meglio
## Performance Testing of Web Applications

Tutor:Prof.Sergio Di Martino

Cycle: XXXVIII

co-Tutor: Dott. Fabio Scippacercola

Year: 2022/2023

# My background

- M.Sc. Degree: Computer Science
  - Thesis: *"E2E-Loader: A Framework to Support Performance Testing of Modern Web Applications"*
- PhD start date: November 1, 2022
- Ph.D. fellowship funded by Fervento srl.

# Research field of interest

Main field of interest is **software verification**:

- End-to-End Testing of web applications;

- Performance Testing of web applications;

- Regression Test Prioritization;
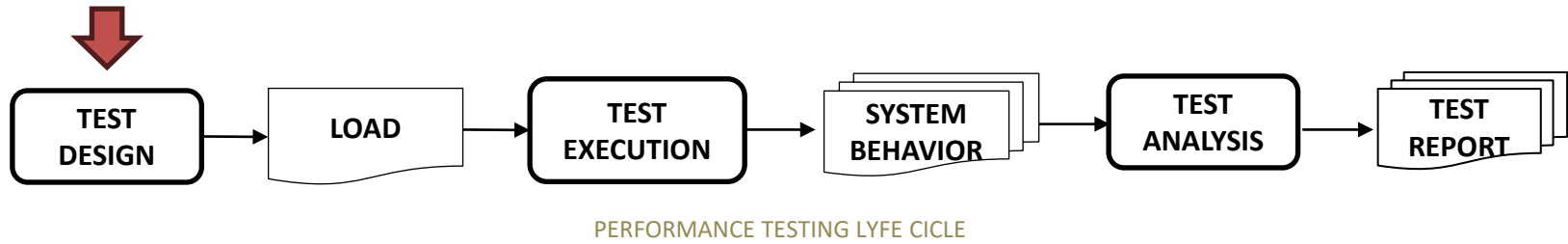
- Software Quality Evaluation;

# Summary of study activities

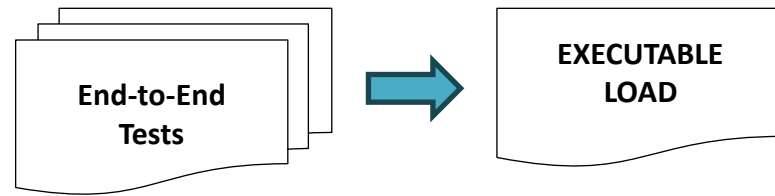|  | Courses | Seminar | Research | Tutorship |
|---|---|---|---|---|
| **First Year ECTS** | 20 | 2,8 | 42 | 1,6 |
| **Expected ECTS range** | 20-40 | 5-10 | 10-35 | 0-1,6 |

Attended conferences:

- 16th IEEE International Conference on Software Testing, Verification and Validation (ICST), April 16-20 2023 Dublin, Ireland.

- 17th International Conference on Software Process and Product Measurement (MENSURA), September 14-15 2023 in Rome, Italy.

# Main Research activity: Overview
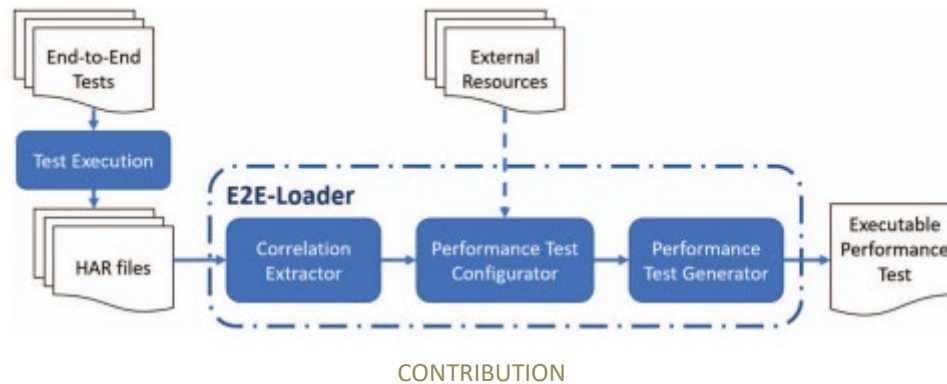


PERFORMANCE TESTING LYFE CICLE

- The **TEST DESIGN** phase is very challenging for the following reasons:

  – The generated load should be as *representative of the field* as possible.

  – Require a *large amount of field system data* => system should be *distributed first*

  – *Obsolete loads* very quickly

  – *New technologies* (e.g. WebSocket)

# Main Research activity: Overview



- **Objective**: Leverage existing E2E functional tests, representing meaningful user behaviors, to support the generation of executable workloads



CONTRIBUTION

# Products: Conference Papers

- **16th IEEE International Conference on Software Testing, Verification and Validation (ICST).**
  *E2E-Loader: A Framework to Support Performance Testing of Web Applications*
  E. Battista, **S. Di Meglio**, S. Di Martino, F. Scippacercola, & L.L.L. Starace (2023).
  Status: published

- **17th International Conference on Software Process and Product Measurement (MENSURA)**
  *Starting a new REST API project? A performance benchmark of frameworks and execution environments*
  *S. Di Meglio, L.L.L Starace , S. Di Martino (2023).*
  *Status: accepted & presented*

# Products: Journal Papers

- **Computer Science Education**
  *Analysis of Software Project Quality: A Comparative Study of Computer Science and Computer Engineering Degree Courses*
  **S.Di Meglio**, M.De Luca, L.L.L Starace, S.Di Martino, P.Tramontana & A.Fasolino
  Status: <span style="color:red">final stage of writing</span>

# Tutorship

- Co-supervised of thesis activities of a M.Sc. In Computer Science student working on web testing.

- Co-supervised of thesis activities of a B.Sc. in Computer Science student working on web testing

- Two two-hours lectures within the "Software Project Management and Evolution" M.Sc. Course held by Prof. Sergio Di Martino. The lectures had the following topics:

  - *Performance Testing*

  - *Static code review and introduction to the use of SonarQube*

# Thank you for your attention!