INTERNATIONAL MASTER IN COMPUTER SCIENCE AND NETWORKING

Worldwide QS ranking

35  Politecnico di Milano  More
50  Politecnico di Torino  More
51-100  Sapienza University of Rome  More
51-100  Alma Mater Studiorum - University of Bologna  More
101-150  Università di Padova  More
101-150  University of Pisa  More
151-200  University of Rome "Tor Vergata"  More
201-250  University of Napoli - Federico II  More
201-250  University of Trento  More
251-300  Scuola Superiore Sant'Anna Pisa di Studi Universitari e di Perfezionamento  More
251-300  University of Milan  More
251-300  Università degli Studi di Pavia  More

University of Pisa
Department of Computer Science
Distributed Enabling Platforms

**Goal:** learn how to use and efficiently exploit computing platforms enabling the execution of complex and distributed applications

- **Exam:** project + oral discussion
- **Period:** second semester, 4h/week
Distributed enabling platform (syllabus)

1. Principles of distributed systems and motivating applications for distributed enabling platforms (e.g., centralized vs distributed systems, distribution-transparency, taxonomy of distributed systems, etc.);

2. Software and deployment architectures for distributed enabling platforms (e.g., Resource Virtualization, Microservices, Cloud-based vs. on-premise, Cloud-Edge continuum, etc.);

3. Distributed Data management supported by widely used distributed enabling platforms (e.g., HDFS, RDDs, etc.);

4. Programming abstractions for distributed systems provided by the most popular enabling platforms (e.g., MapReduce, Think-Like-A-Vertex, Pregel, Agent-based, etc.);

5. Distributed enabling platforms for efficient stream processing (e.g., Apache Storm, Apache Kafka, etc.).
Theses available

• Intelligent resource management and optimizations for distributed enabling platforms;
• AI-based and/or autonomous management of distributed applications with distributed enabling platforms;
• Distributed enabling platforms for next-generation applications (e.g., cloud gaming, autonomous driving, etc.)
• Edge-centric (i.e., decentralized and based on constrained resources) distributed enabling platforms;
• AI-based self-optimizing distributed enabling platforms targeting stream-processing applications;
• Novel application models for distributed enabling platforms;