

AREAS OF COMPETENCE

GESSI is currently working in several research lines:

- ◆ **Smart Cities and Service-Oriented Computing**
- ◆ **Open-Source Software**
- ◆ **Software Architectures**
- ◆ **Requirements Engineering**
- ◆ **Empirical Software Engineering**

COLLABORATIONS

Check our website for offerings on:

- ◆ Direction of Master and Bachelor final projects
- ◆ Participation in funded projects and collaborations with industry
- ◆ A friendly environment to learn and practice on last advances in software engineering
- ◆ Advising PhD thesis
- ◆ Tutoring students in initiatives of whatever types

If you have any proposal or idea, just contact us.

CONTACT

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TOPICS AND COLLABORATIONS

Smart Cities and Service Oriented Computing

While evolving towards the Future Internet (FI) and thanks to enabling technologies as the cloud, the number of Software Services and Apps available to average Citizens (SSAC) is growing dramatically, and so will do in the future. Contrary to other types of systems that are also become challenging today (e.g., systems of systems, cyber-physical systems, these SSAC are relatively small, and their success depends on some desirable characteristics: they need to be highly customizable (due to the diversity of potential consumers), evolvable (because new demands and technological changes constantly happen) and of high quality (since there is a lot of competition).

The success of FI applications will depend on the ability of software engineers to embrace these characteristics together with the high complexity coming from their large volume and great diversity. In this context, the GESSI group is doing research for supporting these challenges from different perspectives. One of these perspectives is service quality. In order to select a suitable service it is necessary to know the quality which that service provides. We work on assessing **Quality of Service (QoS) at runtime**.

One of the main results of GESSI in this field is SALMon, a **service based monitoring framework** used in different universities and research institutions around Europe. We currently have some specific projects to support this area.

For more details about this and other projects of our group, please visit <http://www.essi.upc.edu/~gessi>.

Open Source Software

The GESSI group is the coordinator of the European project RISCOSS (www.riscoss.eu). It is related to managing risks on Open Source Software (OSS) adoption. OSS technologies are currently embedded in almost all commercial software and has become a strategic asset for a number of reasons: short time-to-market and product delivery, reduced development and maintenance costs, and its customization capabilities. The project goals are:

- ◆ **Strategic modelling and analysis of OSS-based ecosystems**
- ◆ **Risk management of OSS projects**
- ◆ **Business models and services for OSS solutions**
- ◆ **Deployment of a software engineering platform for supporting decision-making**

Service Architectures

Quality attributes are among the main drivers of architectural decision making. We are developing methods and tools (ArchiTech) to guide the **architecture definition process with NFRs**.

We are also conducting an empirical analysis of the industrial **use of software reference architectures**. Cost-benefit analysis are being currently undertaken to assess the return on investment of adopters of software reference architectures.

For more details about this and other projects of our group, please visit <http://www.essi.upc.edu/~gessi>.

Requirements Engineering

The reuse of software requirements may help requirement engineers to elicit, validate and document software requirements and, therefore, obtain requirement specifications of better quality. With this aim, we are developing the Pattern-Based Requirement Elicitation (PABRE) framework consisting of:

- ◆ **Software Requirement Patterns (SRP) catalogue.**
- ◆ **SRP models and techniques.**
- ◆ **PABRE-Man and PABRE-Proj tools.**

Empirical Software Engineering

Software engineering research needs to be performed in an experimental context that allows to observe and experiment with the technologies in use, understand their weaknesses and strengths, tailor the technologies for the goals and characteristics of particular projects, and package them together with empirically gained experience to enhance their reuse potential in future projects. With this goal in mind, we are fostering the application of empirical approaches as a transversal topic in our research. Thus, all our research lines are developed under the umbrella of the empirical software engineering paradigm. We have applied several empirical strategies such as Systematic Literature Reviews, case studies, surveys, experiments and action-research approaches.

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