

Advice to Service-Oriented Computing Research Students (Invited Talk)

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Extended Abstract

Service-Oriented Computing (SOC) is a study field at the crossroads of several other fields, such as software engineering, information systems, databases, distributed computing and Internet computing. It is also a rather dynamic field since it is constantly being reshaped by ongoing industrial developments. As a result, SOC is by no means an easy field to undertake a PhD project. This talk will discuss a number of factors that PhD students in the field need to be mindful of when scoping, planning and executing their project.

One such factor is the importance of balancing the scientific requirement of rigor with the aim of being relevant and impacting the practice of SOC. This latter goal can be pursued by undertaking an *applicability check* [1] early on during the PhD project in order to assess the importance and timeliness of the problem and expected outcomes. This effort should be complemented with an ongoing reflection on the accessibility and suitability of the proposed solution, without neglecting the need to follow research methods that withstand scientific scrutiny.

Another factor to be considered is the importance of being validation-aware throughout the PhD project, rather than postponing all the validation effort until the end. This goal can be achieved in a two-pronged manner: (i) by preparing the validity work and collecting data right from the start of a PhD project; and (ii) by alternating design and development steps with validation steps. Different validation methods are commonly used in the field, including prototype implementation, case study, performance experiment, mathematical proof, user experiment, survey. Each of them has its own trade-offs and scope of applicability [2]. Factors worth consideration when selecting a validation method is the type of research question, the type of research outcome, and more broadly, where the PhD project stands in the spectrum between design and empirical science.

Finally, when selecting and scoping a PhD project, one has to be mindful of current agendas and trends in the field. These agendas and trends will be briefly discussed during the talk.

References

1. M. Rosemann and I. Vessey. Toward Improving the Relevance of Information Systems Research to Practitioners: The Role of Applicability Checks. *MIS Quarterly* 32(1):1–22, March 2008.
2. M Shaw. What Makes Good Software Engineering Research. *International Journal of Software Tools for Technology Transfer*, 4(1):1–7, 2002.