Ausschreibung
des Heinz Nixdorf Instituts

Master’s Thesis

The Institute’s
Software Engineering Group
offers master students a
Master’s Thesis with the title

Combination of Service Matching Steps
in Consideration of Efficiency and Fuzziness

Motivation:
One essential task of On-The-Fly Computing (Collaborative Research Center 901) is the composition of software components, so-called services. A prerequisite for the automated service discovery and composition is service matching. Service matching determines whether two services are able to interact with each other and whether a service corresponds to a customer’s request. In order to match precisely, different service aspects have to be taken into account, e.g., inputs and outputs, pre- and postconditions, protocols, or quality properties. These aspects can be matched step by step. Thus, a service can be rejected as soon as one of these steps fails in order to keep the required runtime low. However, in addition, gradual matching results are required in order to allow for so-called fuzzy matching. This means, matching does not only return results like “matches” or “does not match”, but, e.g., a percentage value. Thus, rejecting a service as soon as one of the matching steps fails, is not feasible anymore.

Goal:
The goal of this master’s thesis is to develop a method to combine different matching steps in consideration of the trade-off between the required runtime and the requirement for gradual results. Such an approach could, e.g., use thresholds for the matching results of each step. Furthermore, the required granularity of these results has to be analyzed, as well as the question to which extent the results of different steps can be aggregated. The developed method is to be implemented in an Eclipse-based tool.

The scope of this master’s thesis can also be adjusted to a bachelor’s thesis

Prerequisites:
- Good Java and Eclipse skills