SiREN – Swedish Requirements Engineering Research Network

CALL FOR EXPERIMENT PROPOSALS

SiREN seeks to advance current requirements engineering research by a coordinated empirical effort where a series of controlled experiments are executed at all member nodes of SiREN. The main objectives are (1) to deliver interesting RE research results that are firmly grounded in empirical evidence, (2) to learn about large-scale experimentation, (3) to make the largest software engineering experiment replication series to date.

The envisioned process includes the following 8 steps. Steps 1-3 are co-ordinated by Lund University. Steps 4-8 are co-ordinated by the winning node.

1. *Searching for relevant model experiments in literature*. .....**Search Deadline 2003-12-31**.
   Each node searches the literature on RE experiments to find interesting experiment designs that we can use as an inspiration. The references found are collected and put on the SiREN wiki with a short description of why it is interesting.
2. *Proposal of candidate experiments*. .....**Proposal Deadline 2004-12-31**.
   Each node proposes one or more experiments to be evaluated. All proposals shall follow a specific template as outlined below, and be uploaded in the protected are of the SiREN wiki.
3. *Selection of experiment*. .....**Selection Deadline 2004-01-31**.
   Each node evaluates each candidate experiment based on all written proposals. The winning experiment is selected by an open voting procedure where each node has one vote. Each vote is sent out by the node responsible via the SiREN mailing list. Voting on own proposals is prohibited.
4. *Further elaboration of experiment design*. .....**Design Deadline 2004-04-30**.
   The winning experiment design is further elaborated and reviewed by all nodes. The winning node is responsible for the co-ordination of the experiment design review.
5. *Execution and analysis of first run*. .....**First Run Deadline 2004-05-30**.
   The winning node conducts a first run of the experiment. Lessons learned are used to update the design of the experiment. The first run (as well as the subsequent replications) is carried out with students as subjects characterized using a pre-test.
6. *Execution and analysis of replications in parallel*.
   Each node makes one replication of the experiment with students taking a suitable course or using student volunteers not from a specific course but with suitable background.
7. *Writing paper to SERPS*. .....**Conference Paper Deadline 2004-09-01**.
   An initial report on the experimentation is submitted to SERPS in which the ongoing experiment series is summarized. All nodes are involved in the paper writing. The winning node is co-ordinating the writing process. The first authors are from the winning node, then authors are put in the order in which the replications took place. If suitable an updated version of the SERPS-paper is submitted to ISESE05 or EASE05 with deadlines in 1st quarter of 2005.
8. *Writing paper to a journal*. .....**Journal Paper Goal Date 2005-04-16**.
   Based on feedback from conference reviews and all completed replications a comprehensive journal paper is written and submitted to a premium journal.

Experiment proposal template:

Each experiment proposal should include the following information:

- **Node responsible**: Name of node and persons committing to co-ordinate the experimentation.
- **Goal definition**. *Object of study* (e.g. a certain method), *Purpose* (what to evaluate), *Perspective* (who are interested in the results of the experiment), *Quality focus* (what quality aspect to measure, e.g. individual performance in completing a certain task), *Context* (the experiment environment, e.g. students in a project course).
- **Planning**. *Subject characterisation*, *Independent variables*, *Dependent variables*, *Measurements*, *Instrumentation*, *Hypotheses*, *Experiment Design* (randomisation, blocking, balancing), *Validity evaluation* (how to address major threats to validity).
- **Operation**. What needs to be done to prepare and execute the experiment?
- **Analysis and interpretation**. Relevant descriptive statistics and hypothesis testing.

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