KK-stiftelsen

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Beslut avseende ansökan "Validering av mätningsbaserad kvalitetskontroll"

Beslut: Bifall, högst 1.735.000 kronor för tre år.

Projektansökan har granskats av sakkunnig (Peer-Review) och KK-stiftelsens Expertgrupp för forskning. Den sakkunnige har huvudsakligen bedömt projektets övergripande vetenskapliga kvalitet. Expertgruppen har därefter gjort en helhetsbedömning i enlighet med de kriterier som angavs i inbjudan för HÖG 2005. Den sakkunniges synpunkter och expertgruppens sammanfattande motivering för beslut redovisas nedan.

Sakkunnig konstaterar att "ISO (9126 especially, but also 14598) makes a distinction between internal quality characteristics of a piece of software, inherent in the software itself, like the number of lines of code or the number of function calls, which can be assessed when the system is not running and external quality characteristics, which are pertinent to the software's behaviour at run time. Internal quality is a predictor of external quality. This project concentrates on trying to develop valid and reliable metrics for internal evaluation, concentrating on those quality characteristics (as defined by the ISO standards) which might be thought to be evaluable on general principles of software engineering, leaving aside those which are directly tied to the nature of a specific application).

There are already known metrics for internal evaluation, some of them set out in the ISO standard itself, but they tend to suffer from the known problems of metrics which rely on human intervention for their execution. These problems are of two kinds; first their validity and reliability are fragile, and may fracture if the human is not competent or not functioning well for whatever reason. Secondly they tend to be expensive to administer: humans cost more than machines.

The project here will investigate the use of automated metrics not suffering from these weaknesses as a replacement for or as a complement to the human based metrics. Success cannot of course be guaranteed. But I think there is a good chance of a successful conclusion to the project, and believe that the results promise to be of great utility to the software industry and to those who make use of its products. On a more intellectual front, I think the work itself, whether successful or not, will contribute to research on how to do evaluation."

Den sakkunige anser att "this is a very strong project." "The academic partners tackle very interesting theoretical questions about the evaluation of software, in an approach which is both practical and intellectually satisfying. The application of the academic developed proposals for metrics within the participating companies brings in a strong aspect of applied research. The final results of the project will contribute to quality control in the software development industry very directly, and to the development of standards in the ISO tradition for software evaluation, thus reinforcing the development and application aspects. Furthermore, quite a lot of prior work including tools which have already been developed will be put at the disposal of the company partners, adding to the development and application axis.

"I am not saying that this is a proposal whose results will shake the world: it is a fairly modest contribution to the development of the theory and practice of software evaluation. But from a scientific point of view it is a beautifully constructed project, with clearly defined hypotheses, clear and realistic ways of refuting those hypotheses and easily verifiable potential results. The experimental design is very nice indeed."

"The experimental design is well done, therefore the objectives are clear and verifiable.

I have one small doubt about how realistic the objectives are: The project as a whole depends critically on validation and verification within the companies and I think that the man-power contributions from the companies may have been under-estimated.

However several of the companies have previous experience in collaborating with the same academic partner, so it may simply be that much of the preliminary work needed to set up the experiments is already in place. (Indeed, one of the companies rather suggests that this might be the case, saying that the application which will be used for the study is in C++ - therefore they already know what application they will work with experimentally.)"

"The proposer has a solid past experience which guarantees his ability to carry out the project. Furthermore, as already mentioned, some of the companies have already collaborated on earlier work in the same direction."

"The relevance to industry is very high indeed. Almost all industry now relies on computer software. A project which contributes heavily to quality assurance during software development is doing a signal service not only to the software industry itself but to all the other industrial sectors making use of software."

Högskolans samarbetsparter bedöms som relevanta för projektet.

Expertgruppen för forskning har funnit att projektansökan är inom ett intressant och relevant område. Projektet är välstrukturerat och det finns en bra näringslivskoppling. Företagens låga engagemang kan dock ge problem med tekniköverföringen.

Projektet tillstyrkes men med nedanstående villkor. Kompletteringarna skall tillsändas Stiftelsen före den 15 april 2006:

- Upprättande av kommunikationsplan.
- Upprättande av IPR-avtal.
- Reviderad budget. KK-stiftelsen accepterar endast 35 % i overhead.
- Företagens insatser och engagemang skall tydligare redovisas.
- Tydligare redogörelse av hur resultaten skall komma deltagande företag till godo.

Med vänlig hälsning
STIFTELSEN FÖR KUNSKAPS- OCH KOMPETENSUTVECKLING

Daniel Holmberg
Programansvarig