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Heidelberg, September 3<sup>rd</sup> 2012

Dear Professor Němeček,

I am glad to be selected by the Subject Board of your Faculty to be a referee of the doctoral thesis

**“Robot Localization”**

by **RNDr. David Obdržálek.**

The doctoral thesis of RNDr. David Obdržálek proves the authors ability for creative scientific work. Several publications have been made by RNDr. David Obdržálek and incorporated into his doctoral thesis. Especially his work, published in the four papers

- Software-Hardware Mapping in a Robot Design, pages 19-28, Springer-Verlag, 2008
- Small Autonomous Robot Localization System, pages 461- 463, IEEE, 2008
- Robot Localisation in known Environment using Monte Carlo Localisation, pages 96-106, Springer-Verlag, 2009
- Detecting Scene Elements Using Maximally Stable Colour Regions, pages 107-115, Springer-Verlag, 2009,

also quoted in his doctoral thesis, show new scientific results.

One of these papers, published at IEEE, was winning a best paper award.

New scientific results in the thesis are the work on real time processing of information, extracted from vision as input to Monte Carlo Localisation, as well as the work on Monte Carlo Localisation for graph-based maps.

In robotics, the new proposed ideas can be used for improved navigation purposes. This is true in case of indoor as well as outdoor robots. The application areas of such robots are not limited to rescue robots or industrial robots, but can also be useful in commercial robots, i.e., leisure, household and gardening robots.

Yours Sincerely,