



Aufgabenstellung für die Studienarbeit

Für: Yue Long,

Studiengang: Elektrotechnik

Thema: GUI for Error Propagation Framework 3.0

Probabilistic error propagation analysis is one of research directions of the Institute of Automation. We are continuously developing and updating our analytical software toolset. The GUI interface is an extremely important part. Recently, the underlying analytical software has been extended with new functionality including hierarchical models. *Visual Analytical Interface (VAI)* is our current GUI. It does not support the new functions. *VAI* has been developed for a particular research task. It is hardly expansible and maintainable. The primary task of this work is to develop a new version of the GUI. Support of the new functions, clear and transparent user interface, and high software quality are three key requirements. It is recommended to reuse the parts of the *VAI*, however wisely and with additional testing. The next tasks should be accomplished:

1. Requirements definition with structural analysis
2. State of the art: Overview including methods and tools for GUI development and previous versions of the analytical software and its GUI
3. Design: Definition of typical use cases of the software (e.g. using *Use Case Diagrams*), design of GUI layout (free form), software design (*UML Class diagrams*)
4. Implementation
5. Testing of the GUI using a self-developed or provided case study
6. Software quality verification with *pylint* or a similar tool
7. Documentation: *doxygen*-style documentation, updated *UML* diagrams, quick installation guide
8. Short video how to use the GUI (3 minutes)

The relevant results of the other works that will be used in the SA must be clearly and fully stated in the written part using appropriate citations.

Betreuer: Dr.-Ing. Andrey Morozov

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