

Software Lab:

Mathematics: ★★☆☆☆

Mechanics: ★★☆☆☆

Programming: ★★★★★

Android Application for Second Order Analysis

Setting

The finite element method is a powerful tool for static and dynamic analysis and usually used in desktop computers or laptops. The idea of having our finite element software with us is possible using smartphone and tablets. Android has the largest installed base of all operating systems and applications for android operative system (open source) are written in Java programming language.

The theory of second order permits to understand the behavior of structures by considering the effect of moderate small displacement maintaining the prerequisite of small strains. The scope of this Software Lab is to implement a user-friendly GUI for pre- and post-processing of the finite element model and the implementation of the computational methods necessary for second order analysis.



Task

Create an Android application for solving stability problems

- Create a GUI for 2D problems for preprocessing and postprocessing.
- Programming the Finite Element Method for 2D problems.
- Validate the results with a FE software.

Software

Eclipse IDE
OpenGL



Supervisors

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References

[1] M. Buchschmid, *Stability of Structures/Lectures notes*, 2015.