

# **A STRESS ANALYSIS APP**

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## **ABSTRACT**

Understanding abstract engineering concepts is difficult for engineering students because most of them are of the visual type. Current mobile technology combined with computational mechanics offers innovative ways to create computational tools that may ease the comprehension of these concepts. This work explores some ideas behind the development of an iOS app to simulate a stress analysis laboratory to be used in an educational environment. Using iPad devices a library of engineering mechanics experiments can be manipulated. Engineering students can visualize stresses and displacements using gestures to manipulate stress and displacement contours, scale colors, and query values at a point. Modification of an experiment triggers a reanalysis using finite elements. Several families of experiments are contained in this app simulating bars, beams, frames and stress concentration problems. Current mobile devices are adequate platforms for application of computational mechanics and offer an opportunity for the development of a new set of educational tools in engineering.