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Numerical Simulations of Non-Spherical Compact Stars[1] DAVID WIGLEY, Dept. of Electrical Engineering and Technology, Wentworth Institute of Technology, OMAIR ZUBAIRI, Dept. of Sciences, Wentworth Institute of Technology — Recent theoretical work of highly magnetized neutron stars, such as Magnetars, indicate that these objects undergo radial deformations resulting in prolate or oblate spheroids. Due to these deformations, traditional models using spherical symmetry can not be applied. In this work, we cover how deformed compact stars can be modelled to take this deformity into consideration in the framework of general relativity. In addition, a visual simulation tool has been created to make showcasing these types of models and simulations easier. Visual simulations serve as a quick way to verify data integrity, while simultaneously providing a clear way to explain and present concepts.

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