Abstract: Mooney-Rivlin elasticity equations have been used to model a wide variety of elastic materials, providing good agreement with experimental studies of the stress-strain relationship. Over the last twenty years, this model has been extended in various ways to account for fiber reinforced elastic materials. Of interest are applications in modelling biological material, such as skin and arteries. In this presentation, I provide an overview of nonlinear elasticity for fiber reinforced solids. I then discuss fundamentals of Lie symmetry analysis, and present results from my Thesis research.