

Executive Summary

This thesis tries to show that artificial neural networks can be taught to calculate implied volatility under the Black-Scholes model and option prices under the Heston model. It extends the work of ? on European call options and tries to replicate their results for European put options, Bermudan options and American options. This approach should be faster than currently used numerical methods. Brent's method for calculating implied volatility and the COS method for calculating option prices are used to simulate training data and compare results. We find that the artificial neural networks are superior to numerical methods in calculation speed, especially for Bermudan and American option. In terms of accuracy the artificial neural networks perform well on average, but can have some fairly large outliers.