ABSTRACT

Fast Fourier transform algorithm is one of the most fundamental advances in scientific computing. In the financial, for example in determining the price of the option, several studies successfully applied the Fourier Transform.
In this Final Project, we will describe an approach to calculate the price of the option that is designed to harness the computing power of the Fast Fourier Transform, which will be compared with calculations using the Black-Scholes. Stock pricing model used is the Variance Gamma which will be developed by applying the Fourier Transform, then using Fast Fourier Transform to determine the price of the option.
From the test results, the process time using the Fast Fourier Transform proved to be faster than using the Black-Scholes. As for the option price obtained, Fast Fourier Transform method has little difference with the Black-Scholes method.

Keywords: Options, Fast Fourier Transform, Fourier Transform, Variance Gamma, Black-Scholes