

**SELF-SIMILAR NETWORK TRAFFIC USING RANDOM  
MIDPOINT DISPLACEMENT (RMD) ALGORITHM**

**BY**

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## **DECLARATION**

This is to certify that I am responsible for the work submitted in this project that the originality work is my own effort as specified in the references and acknowledgement and that the original work contained herein have not been taken or done by unspecified sources or persons.

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## **ABSTRACT**

This project is to generate the self-similar network traffic. It is generally accepted that self-similar or fractal process may provide better models for in modern network traffic than Poisson process. Poisson arrival processes are not self-similar, regardless of degree of aggregation. The way to solve this problem, we applied the existed method in visual C++ programming with used the Random midpoint Displacement (RMD) algorithm. That program we need the sequence of the random number as a data. The data was generated depends on the power of two of data. The numbers of data will be analyzed using the R/S Statistic program and Variance Time Plot program. That analysis programs were running in MathCAD v12 platform. The graft will be display after the data is running in the analysis programs as result. The new values of Hurst will be appear as a results whether the self-similar or not. After the analysis process, the result from the R/S Statistic and Variance Tome Plot were not accurate. The new value of Hurst was not exactly same with the expected value of Hurst. As a conclusion, using RMD algorithm the result are more satisfy compare using the traditional process because the result are more accurate are more faster. The RMD fastest in term of computational time but do not accurately reflect the Hurst parameter.

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