Random Number Generation using Chaotic Circuits

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Abstract

In this paper, the use of a chaotic circuit – namely, Chua’s Circuit – is explored as a possible method of random number generation. Using the chaotic nature of the output and the sensitive dependence on initial conditions, random binary bits were generated which and then compared against the output of known state-of-the-art Pseudo-Random-Number-Generators[[1]](#footnote-1) (PRNGs) – in this case, the Mersenne Twister – along with those of a True-Random-Number-Generator[[2]](#footnote-2) using known statistical tests for randomness. The results were used to determine that the random numbers generated were suitable for encryption.

Keywords: [Tap here to add keywords.]

Random Number Generation using Chaotic Circuits

# [Heading 1]

The Chua Circuit

## [Heading 2]1

[To update the table of contents (TOC), apply the appropriate heading style to just the heading text at the start of a paragraph and it will show up in your TOC. To do this, select the text for your heading. Then, apply the style you need.]

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References

Last Name, F. M. (Year). Article Title. *Journal Title*, Pages From - To.

Last Name, F. M. (Year). *Book Title.* City Name: Publisher Name.

Footnotes

1[Add footnotes, if any, on their own page following references. For APA formatting requirements, it’s easy to just type your own footnote references and notes. To format a footnote reference, select the number and then apply the Footnote Reference. The body of a footnote, such as this example, uses the Normal text style. (Note: If you delete this sample footnote, don’t forget to delete its in-text reference as well.)]

Tables

Table 1

[Table Title]

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Figures



Figure 1. [Include all figures in their own section, following references (and footnotes and tables, if applicable). Include a numbered caption for each figure. Use the Table/Figure style for easy spacing between figure and caption.]

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1. Random Numbers generated can be found at - [↑](#footnote-ref-1)
2. Ibid. [↑](#footnote-ref-2)