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# Euclidean Algorithm for auto-generative patterns in a Supercollider application

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PROJECT OF COMPUTER MUSIC COURSE

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# 1 Introduction

Euclidean rhythms are all drum patterns that can be generated through the Euclidean Algorithm. This class of rhythms, was discovered in 2005 by Godfried Touissant[1]. He found that those patterns are often present in music from various parts of the world and different time periods. Since then, Euclidean rhythm generators started to spread in music production, since with very few parameters one can generate very complex patterns and polyrhythms. A lot of eurorack synthesizer modules have been developed since then like the Qbit blab la, bla bla and blab la, just to name a few. This paper will present a software implementation of a drum machine capable of generating Euclidean rhythms, using Supercollider programming language.

## 2 Development of application

In this chapter we will introduce to Supercollider objects and to style of programmation adopted (OO, class definitions...)

### 2.1 Algorithm

In this section we will write about the class of the algorithm and its relationship with paper algorithm

### 2.2 SynthDefs and Gui Layout

In this section we will speak about the SynthDefs, their pattern controllers (Pdefs and Pbinds) and the Gui definitions.

### **3 Conclusions**

In this section we will conclude the report providing short synthesis of the project and Github analysis.

## References

- [1] Godfried Toussaint, “The euclidean algorithm generates traditional musical rhythms,” Tech. Rep., School of Computer Science, McGill University, Montreal, Quebec, Canada, 2004.