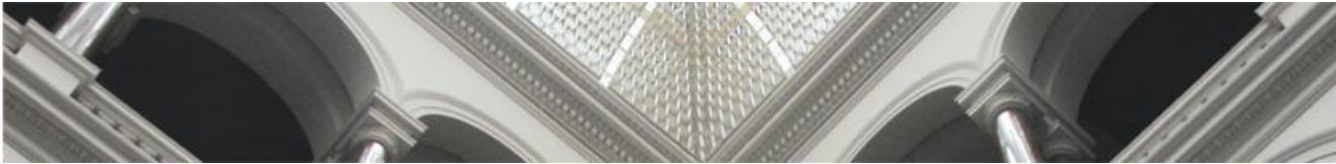


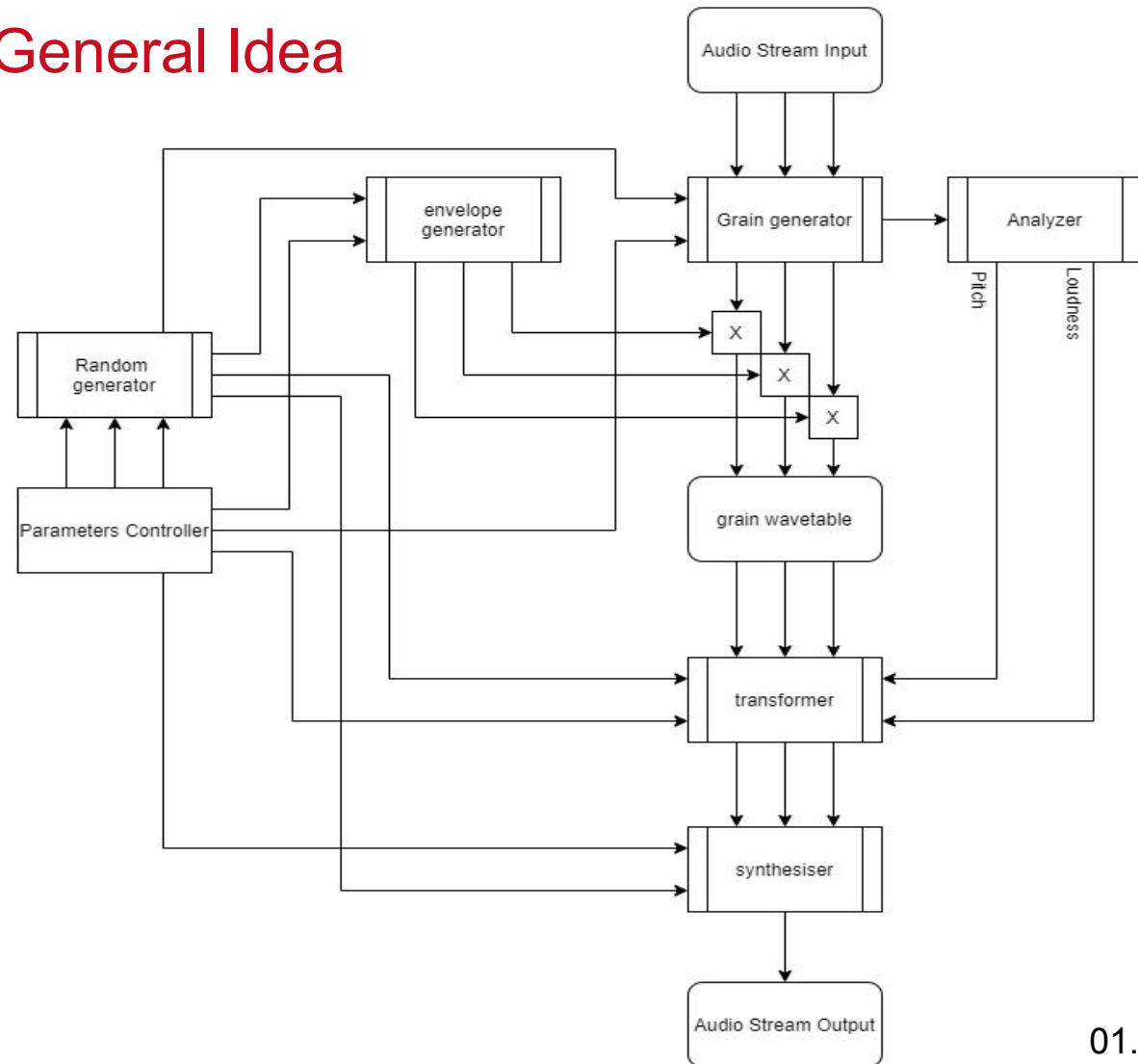


G.O.A.T : Granular Omnipotent Audio Transformer

Amon Benson, Zeyu Yang, Kai Schildknecht, Valentin Lux | RTAPiC | Project Introduction



Motivation and General Idea



Fast Normal Random Number Generator

1. Ziehe zwei Zufallszahlen u, v_0 , die in $[0,1]$ gleichverteilt sind. Setze

$$v = 1.7156(v_0 - 0.5).$$

2. Setze

$$x = u - 0.449871, \quad y = |v| + 0.386595, \quad Q = x^2 + y(0.19600y - 0.25472).$$

3. Wenn $Q < 0.27597$ gehe zu Schritt 6.
4. Wenn $Q > 0.27846$ gehe zu Schritt 1.
5. Wenn $v^2 > -4u^2 \ln u$ gehe zu Schritt 1.
6. Gebe

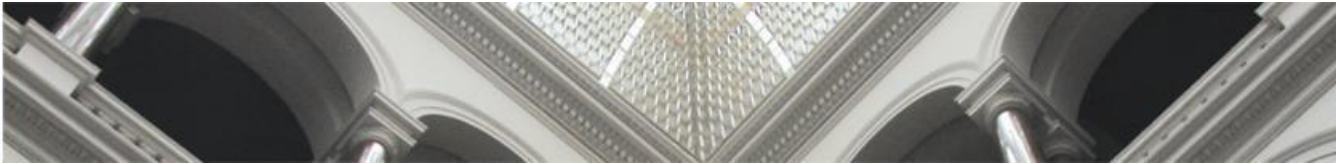
$$g = \frac{v}{u}$$

als Zufallszahl zurück.



Pitch Detection

- Main Architecture: Bitstream Autocorrelation [4]
- Error Correction and Improvements: YIN Algorithm [5]



References

- [1]
<http://www.rossbencina.com/static/codehttp://www.rossbencina.com/static/code/granular-synthesis/BencinaAudioAnecdotes310801.pdf/granular-synthesis/BencinaAudioAnecdotes310801.pdf>
- [2] <http://pd-tutorial.com/german/ch03s07.html>
- [3] Leva, J. L. (1992, Dezember). A fast normal random number generator. ACM. Transactions on Mathematical Software (TOMS), 18, 449-453.
- [4] <https://www.cycfi.com/2020/07/fast-and-efficient-pitch-detection-revisited/>
- [5] <http://mroy.chez-alice.fr/yin/index.html>