EE2025 Independent Project (2019-20)
Programming Assignment - 1

Team - details:

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S(t) = a1 $\cos 2\Pi fct$ + b1 $\sin 2\Pi fct$

S(t) = $\phi 1(t)\sqrt{T/2}\,a1$ + $\phi 2(t)\sqrt{T/2}\,b1$

Energy of each wave = T/2 x ($a1^2 + b1^2$) a1,b1 $\in \{1,-1\}$

Total number of waves = 5500

Total energy = TX5500

Average energy = TX5500/5500 = T

Eb = Avg. energy per bit = T/2

Variance = fs x No/2

Each case(Eb/No) is described in next pages

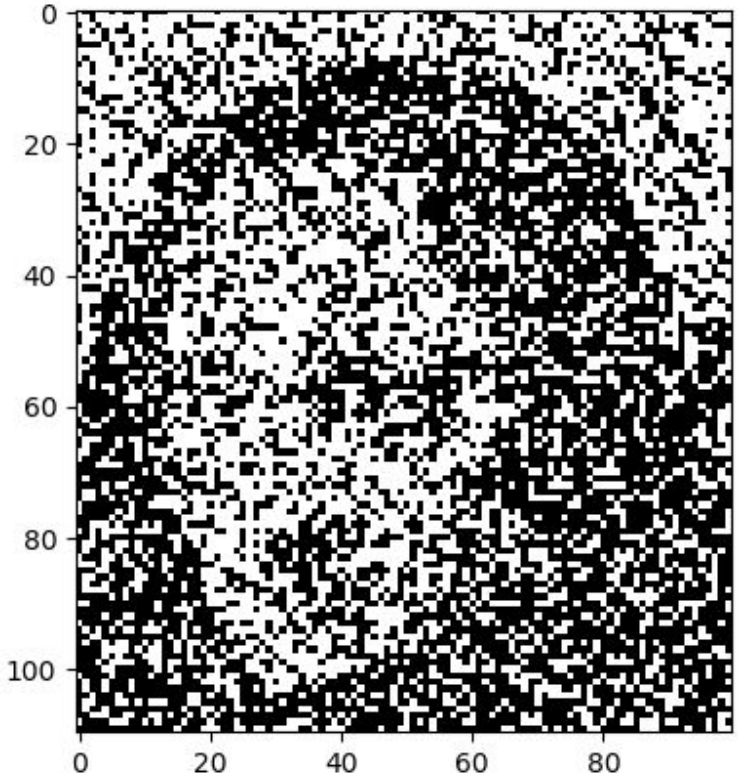
CASE 1

Eb/No = -10 db

Number of wrong pixels reported = 3673

Q($\sqrt{2Eb/No}$) = 0.327630

Bit rate obtained = 0.33390



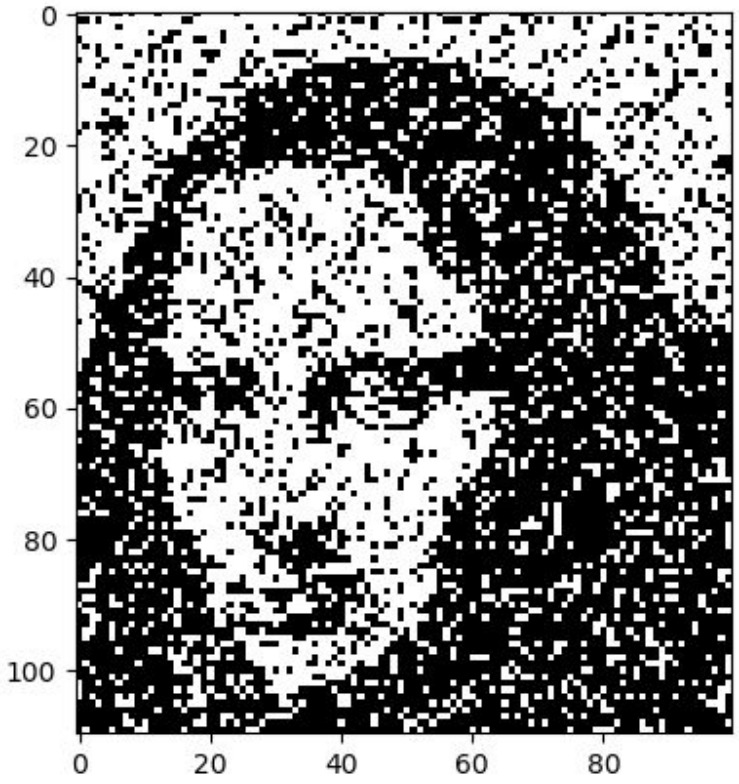
CASE 2

Eb/No = -5 db

Number of wrong pixels reported = 2264

Q($\sqrt{2Eb/No}$) = 0.213228

Bit rate obtained = 0.205818



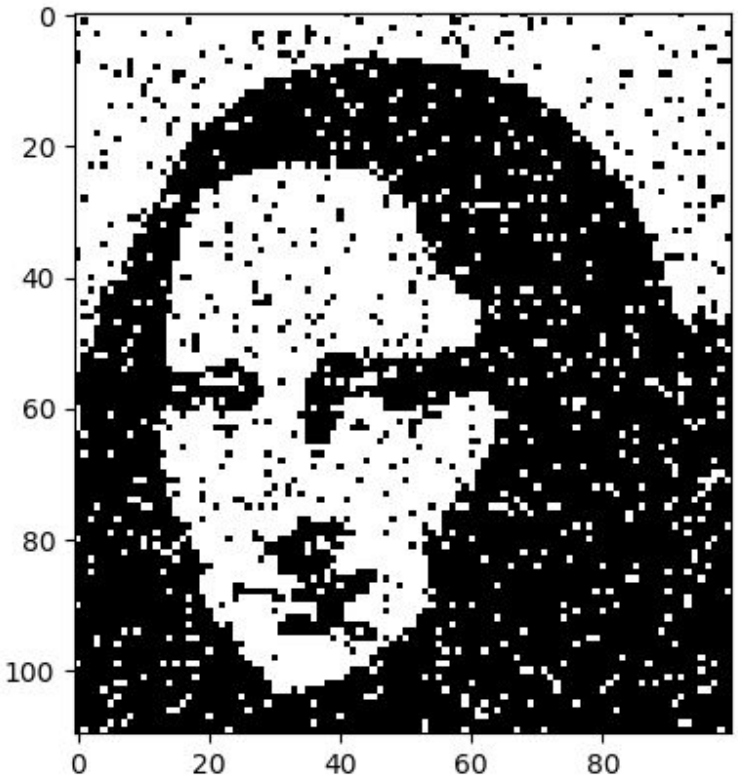
CASE 3

Eb/No = 0 db

Number of wrong pixels reported = 868

Q($\sqrt{2Eb/No}$) = 0.0786496

Bit rate obtained = 0.0789090



CASE 4

Eb/No = 5 db

Number of wrong pixels reported = 68

Q($\sqrt{2Eb/No}$) = 0.0059538

Bit rate obtained = 0.0061818