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ECE251 Assignment 3 explanation

1. The error in the eye plot was because I was giving the filter a long-pulse train rather than an impulse train at the symbol frequency. This resulted in both the scaling issue and the eye-plot error. I was inadvertently causing ISI in my time domain signal because I was superimposing the impulse responses of the SRRC filter too close together by giving the filter a PAM squarewave instead of an impulse train.
2. –
3. –
4. Resolved error due to fix in part 1.
5. -
6. I had to add an additional delay of .5\*sps to the start of the sampling train to ensure that the center of each symbol in y(t) is being sampled, rather than the edge.
7. I had to get rid of the last number of symbols equal to the span of the SRRC filter because they get pushed out due to the filter delay. Otherwise they will artificially drag down the bit-error-rate. When I run the script with an alpha of 0.2, I usually get 2 to 4 errors. As far as I know, these errors are random and not corresponding to a systematic mistake. When I run the script with an alpha of slightly greater than 0.2, (e.g. 0.25) these errors go away. 0.2 seems to be just on the threshold of where these errors arise.