

Senior Design Group: Chaotic Spread-Spectrum System

Jan 28 – Feb 4

Generate binary PN sequences in SystemView and FPGA, and observe the spectrum of the sequences;

Feb 5 – Feb 11

Generate a basic spread-spectrum transmitter with PN sequences, observe the spectrum difference between symbol sequences and spread signals;

Feb 12 – Feb 18

Spread-spectrum receiver design. Observe the BER when additive white Gaussian noise is added in the channel.

Feb 19 – Feb 25

Generate a chaotic sequence with logistic map.

Feb 26 – Mar 5

Use chaotic sequence instead of PN sequences in the spread-spectrum communication system;

Mar 6 – Mar 12

Observe the performance of chaotic spread-spectrum communication system in terms of BER and power spectral density by considering two transmitters.

Spring Break

Mar 20 – Mar 26

Test the performance of chaotic system under Rayleigh fading channel;

Mar 27 – Apr 2

Test the performance of chaotic system under Rice fading channel;

Apr 3 – Apr 9

Test the performance of binary PN system under both Rayleigh and Rice fading channel;

Apr 10 – Apr 16

Compare the performance of chaotic and binary PN system under the fading channels in terms of BER;

Apr 17 – end

Write the report and present the results.