Digital Communication Systems Using MATLAB® and Simulink®

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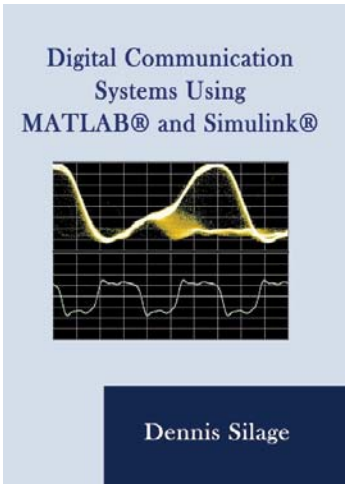
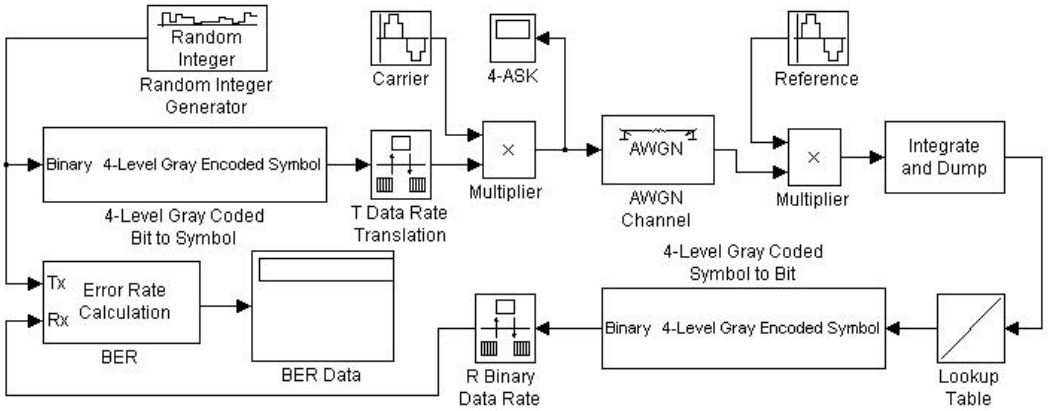


http://www.dennis-silage.com/digitalcommMS.htm

http://www.ebookstand.com/book_details/Digital_Communication_Systems_Using_MATLAB_and_Sim

Digital Communication Systems using MATLAB® and Simulink® utilizes a communication systems simulator by The MathWorks™ (*www.mathworks.com*) with advanced capabilities for analysis and design. The text serves as an introduction to simulation for undergraduate students in a contemporary course, where it provides the opportunity to go beyond the lecture or the hardware laboratory. Graduate students in a rigorous first course will find the *MATLAB* and *Simulink* simulation environment an adjunct to their understanding of the concepts of digital communication systems, facilitating their projects and thesis. Professionals, once having had a course primarily in analog communications, will be able to acquaint themselves with modern digital communications in the *MATLAB* and *Simulink* simulation environment. An extensive discussion of the precepts of digital communications is coupled with simulation models and observed results. With clear and concise descriptions this is an essential guide for anyone wishing to fully utilize *MATLAB* and *Simulink* in the simulation of digital communication systems**.**



M-ary ASK, Gray Coded, Bandpass Digital Communication System *Simulink* Model

KEY FEATURES

- A complete description of the *MATLAB* and *Simulink* digital communication system simulation environment suitable for undergraduate and graduate students and professionals
- Describes the analysis and design of modern digital communication systems with noise and non-linearities using simulation models without analytical equations
- Simulation results are used to illustrate and validate the concepts of digital communications with the complete development of the correlation receiver in AWGN and the power spectral density and bandwidth of modulated signals
- Provides a translation of digital communication system block diagrams, a common occurrence in textbooks, to the *MATLAB* and *Simulink* simulation environment with a complete description of the parameters
- Facilitates the what-ifs of digital communication system design by rapidly changing simulation parameters
- Downloadable *MATLAB* and *Simulink* model files, instructional and reference materials, undergraduate laboratories and graduate projects are available on the author's website at *http://astro.temple.edu/~silage*

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Chapter1 Communication simulation techniques, *MATLAB* and *Simulink* blocksets and displays, simulation of analog DSB-AM

Chapter 2 Baseband modulation and demodulation, binary and M-ary PAM, partial response signaling, optimum receiver in AWGN, BER, delta modulation, eye diagrams

Chapter 3 Bandpass modulation and demodulation, binary and M-ary ASK, FSK and PSK, QAM, DPSK, coherent and noncoherent demodulation in AWGN, BER, constellation plots

Chapter 4 Sampling and quantization of baseband and bandpass signals, companding, PCM, DPCM, line codes

AUTHOR BIOGRAPHY

Dennis Silage (Philadelphia, PA) is a Professor in the Department of Electrical and Computer Engineering at Temple University. He has a Ph.D. in Electrical Engineering from the University of Pennsylvania. He is the author of *Digital Communication Systems Using SystemVue* (Cengage Publishing, 2006) and *Embedded System Design Using Programmable Gate Arrays* (Bookstand Publishing, 2007). He was awarded the National Outstanding Teaching Award from the American Society for Engineering Education in 2007 for his pedagogical innovations in undergraduate analog and digital communications. He is a senior member of the IEEE and director of the System Chip Design Center *http://www.temple.edu/scdc*, which researches the application of Xilinx field programmable gate arrays in digital signal processing and digital communication.