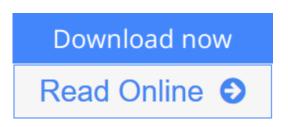


# Problem-Based Learning in Communication Systems Using MATLAB and Simulink (IEEE Series on Digital & Mobile Communication)

By Kwonhue Choi, Huaping Liu



**Problem-Based Learning in Communication Systems Using MATLAB and Simulink (IEEE Series on Digital & Mobile Communication)** By Kwonhue Choi, Huaping Liu

Designed to help teach and understand communication systems using a classroom-tested, active learning approach.

- Discusses communication concepts and algorithms, which are explained using simulation projects, accompanied by MATLAB and Simulink
- Provides step-by-step code exercises and instructions to implement execution sequences
- Includes a companion website that has MATLAB and Simulink model samples and templates

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### **Editorial Review**

From the Back Cover

Designed to help teach and understand communication systems using a classroom-tested, active learning approach.

This book covers the basic concepts of signals, and analog and digital communications, to more complex simulations in communication systems. *Problem-Based Learning in Communication Systems Using MATLAB and Simulink* begins by introducing MATLAB and Simulink to prepare readers who are unfamiliar with these environments in order to tackle projects and exercises included in this book. Discussions on simulation of signals, filter design, sampling and reconstruction, and analog communications are covered next. The book concludes by covering advanced topics such as Viterbi decoding, OFDM and MIMO. In addition, this book contains examples of how to convert waveforms, constructed in simulation, into electric signals. It also includes problems illustrating how to complete actual wireless communications in the band near ultrasonic frequencies.

A content-mapping table is included in this book to help instructors easily find lab projects for communications, wireless communications, and signal and systems classes.

Special features of this book:

- Discusses communication concepts and algorithms, which are explained using simulation projects, accompanied by MATLAB and Simulink
- Provides step-by-step code exercises and instructions to implement execution sequences
- Includes a companion website that has MATLAB and Simulink model samples and templates (link provided below)

This book is intended for students and instructors, enrolled in or teaching communications systems, analog and digital communications, and wireless communication courses.

**Kwonhue Choi** is a Professor in the Department of Information and Communication Engineering and the Principal Director of Broadband Wireless Communication (BWC) Laboratory at **Yeungnam University**, **Korea**. His research areas include efficient multiple access, diversity schemes, and cooperative communications for Fifth-Generation (5G) and beyond systems. He is the inventor of FADAC-OFDM and PSW (Properly scrambled Walsh) codes.

**Huaping Liu** is a Professor with the School of Electrical Engineering and Computer Science at **Oregon State University**, **USA**. He was formerly a cellular network radio frequency systems engineer specializing on modeling, simulating, optimizing, and testing various digital communication systems. Dr. Liu received his PhD in Electrical Engineering at New Jersey Institute of Technology, USA.

About the Author

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