

Preface

In this book, we tried to explain digital signal processing topics in detail. We paid attention to the simplicity of the explanation language. And we provided examples with increasing difficulty. The reader of this book should have some background about signals. If it is possible, the reader should learn fundamental concepts on signals and systems since, in this book, more attention is paid on digital signal processing concepts rather than continuous time signal processing topics. Hence, we assume that the reader has fundamental knowledge about all types of signals and transforms.

All the topics in this book are presented in an orderly manner. We tried to simplify the language of this book as possible as we can. We also provided original examples explaining the aim of the subjects studied in this book. Numerical examples are provided for the comprehension of the subjects. Unnecessary abundance of mathematical details is omitted for the simplicity of the presentation language. In addition, to indicate both continuous and digital time frequencies, we preferred to use the same parameter. We thought that using two different parameters mixes the students' mind and it is not necessarily needed.

This book includes four different chapters. And in these chapters, sampling of continuous time signals, multirate signal processing, discrete Fourier transform, and filter design concepts are covered. In sampling of continuous time signals and multirate signal processing chapters, we provided some original practical techniques to draw the spectrum of aliased signals. In discrete time Fourier transform chapter, well-designed numerical examples are provided to illustrate the operation of the fast Fourier transform algorithm. In filter design chapter, both analog and digital filter design techniques are explained in detail. For the analog filters, we also provided analog filter circuit design methods for the designed analog filter transfer function.

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Orhan Gazi



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Gazi, O.

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