Speech Enhancement in the Karhunen-Loeve Expansion Domain (Paperback)

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Morgan Claypool Publishers, United States, 2011. Paperback. Condition: New. Language: English . Brand New Book. This book is devoted to the study of the problem of speech enhancement whose objective is the recovery of a signal of interest (i.e., speech) from noisy observations. Typically, the recovery process is accomplished by passing the noisy observations through a linear filter (or a linear transformation). Since both the desired speech and undesired noise are filtered at the same time, the most critical issue of speech enhancement resides in how to design a proper optimal filter that can fully take advantage of the difference between the speech and noise statistics to mitigate the noise effect as much as possible while maintaining the speech perception identical to its original form. The optimal filters can be designed either in the time domain or in a transform space. As the title indicates, this book will focus on developing and analyzing optimal filters in the Karhunen-Loeve expansion (KLE) domain. We begin by describing the basic problem of speech enhancement and the fundamental principles to solve it in the time domain. We then explain how the problem can be equivalently formulated in the KLE domain. Next, we divide the...

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