

Preface

This book was written for undergraduate and graduate students as well as researchers and scientists interested in artificial intelligence techniques. In fact, the intention of this book is to introduce and fully describe the artificial organic networks technique, a novel machine learning method inspired on chemical carbon networks. In addition, an organic network-based algorithm named artificial hydrocarbon networks is presented to show the advantages and the scope of the technique.

On one hand, the book is complemented with several examples through chapters and the description of real-world applications using artificial hydrocarbon networks. On the other hand, the text is accompanied with an artificial organic networks toolkit implemented on LabVIEWTM allowing a hands-on experience to readers.

The organization of the book is as follows: [Chapter 1](#) introduces an overview of machine learning and the modeling problem while [Chap. 2](#) describes key concepts of organic chemistry in order to understand the technique, [Chaps. 3](#) and [4](#) describe the artificial organic networks technique and the artificial hydrocarbon networks algorithm. Then, [Chap. 5](#) offers some improvements to the basic artificial hydrocarbon networks algorithm. Finally, [Chaps. 6](#) and [7](#) provide experimental results and discuss how to implement the algorithm in real-world applications like audio filtering, control systems and facial recognition.

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Artificial Organic Networks

Artificial Intelligence Based on Carbon Networks

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