Preface

This book is a collection of contributions by active researchers, in the field of Data-Centric Engineering, on important topics in this rapidly evolving field and is an attempt to shed light on the use of data-centric approaches in structural health monitoring (SHM). SHM has continued to gain immense importance in recent years due to the need for timely and accurate diagnosis of potential structural failures. With the increasing complexity of structures and the advent of advanced sensing and data collection technologies, the field of SHM has witnessed a paradigm shift towards data-driven approaches, which rely on data-centric methodologies for data collection, processing, and analysis. The present book aims to present a comprehensive overview of these approaches, their advantages and limitations, and their potential applications in the field of SHM. It covers a wide range of topics, from basic concepts and principles to advanced techniques, and presents case studies and real-world applications to illustrate the relevance and effectiveness of these methods.

One of the key benefits of data-centric SHM is that it allows for continuous monitoring of a structure, providing real-time insights into its health and performance. This can help to identify potential issues before they become critical, allowing for timely maintenance and repairs. Additionally, data-centric SHM can provide a more comprehensive view of a structure's health, compared to traditional inspection methods, which may only focus on certain areas or components.

This edited volume on data-centric structural health monitoring is published as part of a new book series, titled *Data-Centric Engineering*, which has just been established by De Gruyter. The editors of this book are the founding editors of the new series. This volume represents an effort to provide a comprehensive overview of the latest advances and techniques in this rapidly evolving field. By exploring the benefits and limitations of data-driven methodologies and presenting real-world applications, we hope to contribute to the ongoing discussion on the role of data-centric approaches in SHM. We believe that this book will be a valuable resource for researchers, practitioners, and students who are interested in the field of SHM and data-driven approaches. We thank all the contributors for their insightful contributions, and we hope that this book will inspire further research and innovation in this exciting area of study. As the editors of the Data-Centric Engineering series, we also invite and encourage scholars from all branches of engineering and sciences, who are active in this multi-disciplinary field, to contact us if they are interested in publishing edited volumes relevant to this theme in their fields of expertise.

Editors
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