

Data-Centric Civil Engineering

Data Science for Advanced Civil Engineering Applications

Despite this rising enthusiasm among post-graduate students and R&D practitioners for new data-driven techniques in civil engineering, no comprehensive references book exist that introduces such techniques to the civil engineering audience and explores the applications of these techniques in civil engineering. Consequently, this enthusiastic audience often refers to textbooks published in other engineering disciplines to learn the fundamentals of data science techniques; and then refers to journal and conference articles to learn the civil engineering applications of these techniques. This approach often leads to familiarizing the readers with a set of techniques that suit other engineering disciplines and using irrelevant engineering examples. Additionally, this approach ignores the unique characteristics of civil engineering problems (e.g., empirical data limitation). This book addresses these limitations by providing the first reference book on data-centric civil engineering to introduce advanced data science theories to the civil engineering audience. This book uses a variety of problems from the different fields of civil engineering (e.g., transportation, structure, and construction) and considers the unique limitations that civil engineers deal with in their research and practices.

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165,50 €

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vorbestellbar, Erscheinungstermin ca. Juli 2027

Artikelnummer: 9780443219252

Medium: Buch

ISBN: 978-0-443-21925-2

Verlag: Elsevier Science

Erscheinungstermin: 01.07.2027

Sprache(n): Englisch

Auflage: Erscheinungsjahr 2027

Produktform: Kartoniert

Seiten: 230

Format (B x H): 152 x 229 mm

