Call for Chapter
Book – „Principles of Data Science"

to be published by Springer (US)

Outline of the Book

Depending on the data science life cycle, a data scientist works on different tasks to solve a data science problem. After analyzing and describing a problem, a data scientist has to identify the required data and develop a model to solve the problem. In general, many models, methods and techniques are available for this process. Depending on the application (forecast, recommender system, text mining, image recognition etc.) the user selects the approach(es) that seem(s) to be successful based on benchmarks, best practices, experience etc. This book aims to show the most important techniques and new approaches for each task within the data science life cycle.

Part 1: Data Acquisition, Extraction, and Cleaning
This part presents methods for data acquisition, extraction, cleaning and dealing with missing values. There are several architectures for data storage, which depend on the kind of data (structured vs. unstructured data) to be stored. Besides, multiple channels are used to retrieve the data and the data must be integrated and transformed. For cleaning, detection of and dealing with outliers are important aspects as well as treating missing values in an appropriate manner.
Depending on the problem at hand, a reasonable approach for each task should be chosen. This part explains how these methods work and which ones fit for which task.

Part 2: Data Summarization and Modeling
Within the data science life cycle the data is transferred, aggregated, summarized, categorized, classified and/or clustered. Therefore, many methods are available. Sometimes they have to be adapted to a special problem. After the identification of the feature variables, a model can be developed to solve the problem. To analyze these models it is necessary to evaluate the solutions by suited key performance indicators and/or to measure the impact of each feature variable.

Part 3: Data Science Tools
Many tools, platforms, and libraries are used in the scope of data science. An overview and a classification show the possibilities to solve data science problems. For example, for a practical application the user needs a pre-configured software system (with the possibility to set parameter values of the used model), whereby a scientist probably wants to write a program code to analyze the problem in more detail.

Part 4: Data Analysis, Visualization and Communication Techniques
To support decision processes, means to analyze, visualize and communicate results are necessary to successfully apply models in business environments and processes. Aspects like human-computer interaction and usability need to be considered when it comes to the practical use of data science. This part should give an overview on tools and methods for supporting (real-time) data analysis, visualization and communication techniques.

Part 5: Deep Learning in Data Science
Deep learning is a concept and there are different algorithms and methods for implementing it. Given a large dataset, deep learning recognizes the context of the data, but usually the algorithms need to be adapted to the domain. The generalization of these algorithms for determined problem classes is an important research field.

Part 6: Data Science Applications
This part deals with practical applications and describes the solution of special problems as well as the generalization of approaches for typical problem fields, like demand forecasting, recommender systems, analyzing customer reviews, image recognition or alike. The applications demonstrate the steps taken in the data science life cycle and detail the design and methodology used for solving the specific problem.

Editors (alphabetical order)

Co-Editors

- Kevin Daimi, University of Detroit Mercy, Mich., USA, daimikj@udmercy.edu
- Robert Stahlbock, University of Hamburg, Germany, robert.stahlbock@uni-hamburg.de

Associate Editors

- Kai Brüssau, University of Hamburg, Germany, kai.bruessau@uni-hamburg.de
  Parts 1 and 3
- Leonard Heilig, University of Hamburg, Germany, leonard.heilig@uni-hamburg.de
  Parts 4 and 5
- Cristina Soviany, CEO, Features Analytics SA, Belgium, cristina.soviany@features-analytics.com
  Parts 2 and 6

General questions about the book should be sent to Kevin Daimi and/or Robert Stahlbock, specific questions to parts of the book or submissions should be sent to the Associate Editors.

Submission Guidelines

All submissions must be original and not simultaneously submitted to another journal or conference or book project. The submitted chapter should have approximatly 12-20 pages (for chapters with more pages: please contact Editors) and include sufficient details to be useful for readers having Data Science knowledge ranging from basic to the most advanced. The book is divided into six areas or parts (see above). Please indicate on the first page the area in which your chapter fits. Corresponding authors should insert an "*" after their names. The format of the draft submission should be single-column.

You can submit your draft chapter via the ‚EasyChair' platform. This is prefered for handling purposes. Please have a look at https://easychair.org/conferences/?conf=pds-19. As an alternative, the draft chapter can also be emailed to the Associate Editor in charge of that area (cc to the Co-Editors).

Authors will receive a free copy of the book from Springer.

Deadline for submission: April 15, 2019