

1. Record Nr.	UNINA9910731488503321
Autore	Suh Changho
Titolo	Communication Principles for Data Science // by Changho Suh
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2023
ISBN	9789811980084 981198008X
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (294 pages)
Collana	Signals and Communication Technology, , 1860-4870
Disciplina	381
Soggetti	Artificial intelligence - Data processing Digital media Computer science - Mathematics Mathematical statistics Signal processing Data Science Digital and New Media Probability and Statistics in Computer Science Signal, Speech and Image Processing Ciències de la informació Mitjans de comunicació digitals Estadística matemàtica Processament de senyals Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Preface -- Acknowledgements -- Part 1. Communication over the Gaussian channel -- Chapter 1. Overview of the book -- Chapter 2. A statistical model for additive noise channels -- Chapter 3. Additive Gaussian noise model -- Problem Set 1 -- Chapter 4. Optimal receiver: maximum A Posteriori (MAP) principle -- Chapter 5. Analysis of error probability -- Chapter 6. Multiple bits transmission via pulse amplitude modulation -- Problem Set 2 -- Chapter 7. Multi-shot communication -- Chapter 8. Repetition coding -- Chapter 9: Capacity of the additive

white Gaussian noise channel -- Problem Set 3 -- Part 2.
Communication over inter-symbol interference (ISI) channels --
Chapter 10. Signal conversion from discrete to continuous time (1/2)
-- Chapter 11. Signal conversion from discrete to continuous time
(2/2) -- Chapter 12. Optimal receiver architecture -- Problem Set 4 --
Chapter 13. Optimal receiver in ISI channels: maximum likelihood (ML)
sequence detection -- Chapter 14. Optimal receiver in ISI channels:
Viterbi algorithm -- Problem Set 5 -- Chapter 15. Orthogonal frequency
division multiplexing (1/3) -- Chapter 16. Orthogonal frequency
division multiplexing (2/3) -- Chapter 17. Orthogonal frequency
division multiplexing (3/3) -- Problem Set 6 -- Part 3. Data science
applications -- Chapter 18. Community detection as a communication
problem -- Chapter 19. Community detection: ML principle -- Chapter
20. Community detection: An efficient algorithm -- Chapter 21.
Community detection: Python implementation -- Problem Set 7 --
Chapter 22. Haplotype phasing as a communication problem -- Chapter
23. Haplotype phasing: ML principle -- Chapter 24: Haplotype phasing:
An efficient algorithm. .

Sommario/riassunto

This book introduces the basic principles underlying the design and analysis of the digital communication systems that have heralded the information revolution. One major goal of the book is to demonstrate the role of the digital communication principles in a wide variety of data science applications, including community detection, computational biology, speech recognition and machine learning. One defining feature of this book is to make an explicit connection between the communication principles and data science problems, as well as to succinctly deliver the “story” of how the communication principles play a role for trending data science applications. All the key “plots” involved in the story are coherently developed with the help of tightly coupled exercise problem sets, and the associated fundamentals are explored mostly from first principles. Another key feature is that it includes programming implementation of a variety of algorithms inspired by fundamentals, together with a brief tutorial of the used programming tools. The implementation is based on Python and TensorFlow. This book does not follow a traditional book-style organization, but is streamlined via a series of lecture notes that are intimately related, centered around coherent storylines and themes. It serves as a textbook mainly for a junior- or senior-level undergraduate course, yet is also suitable for a first-year graduate course. Readers benefit from having a good background in probability and random processes, and basic familiarity with Python. But the background can be supplemented by almost self-contained materials, as well as by numerous exercise problems intended for elaborating on non-trivial concepts. In addition, Part III for data science applications should provide motivation and insights to students and even professional scientists who are interested in the field.

2. Record Nr.	UNINA9911018662503321
Autore	Garcia-Fernandez Mario
Titolo	Advances in Poisson Geometry // edited by Mario Garcia-Fernandez, David Iglesias Ponte, Eva Miranda, Cédric Oms, Roberto Rubio
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Birkhäuser, , 2025
ISBN	3-031-86657-6
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (685 pages)
Collana	Advanced Courses in Mathematics - CRM Barcelona, , 2297-0312
Altri autori (Persone)	PonteDavid Iglesias MirandaEva OmsCédric RubioRoberto
Disciplina	516.36
Soggetti	Geometry, Differential Differential Geometry Geometria diferencial Geometria simplèctica Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	- Part I: Introduction to Poisson Geometry -- 1. A brief Introduction to Poisson Geometry -- Part II: Wonderful Varieties -- 2. Wonderful Varieties with a View Towards Poisson Geometry -- Part III: An Invitation to Singular Foliations -- 3. What is a singular foliation? -- 4. Canonical geometric and algebraic structures hidden behind a singular foliation -- 5. State of the Art and open questions.
Sommario/riassunto	This book presents recent advances in topics related to Poisson geometry originating from lectures given at the "Poisson School" held in 2022 at the CRM in Barcelona. The purpose is to give both an introduction to this active field of research as well as highlight new trends in related topics. The texts cover both classical results, known to experts in the field, as well as recent and previously unpublished mathematical results. Graduate students and early-stage researchers with basic knowledge in differential and symplectic geometry, together with established researchers that are keen to dive into this rapidly growing field of research, will find this book a useful resource.

