1. Record Nr. UNINA9910886987803321

Autore	Tomczak Jakub M
Titolo	Deep Generative Modeling / / by Jakub M. Tomczak
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2024
ISBN	9783031640872 303164087X
Edizione	[2nd ed. 2024.]
Descrizione fisica	1 online resource (325 pages)
Disciplina	005.11
Soggetti	Artificial intelligence Machine learning Computer science - Mathematics Mathematical statistics Computer simulation Artificial Intelligence Machine Learning Probability and Statistics in Computer Science Computer Modelling
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1 Why Deep Generative Modeling? -- Chapter 2 Probabilistic modeling: From Mixture Models to Probabilistic Circuits -- Chapter 3 Autoregressive Models -- Chapter 4 Flow-based Models -- Chapter 5 Latent Variable Models -- Chapter 6 Hybrid Modeling -- Chapter 7 Energy-based Models -- Chapter 8 Generative Adversarial Networks -- Chapter 9 Score-based Generative Models -- Chapter 10 Deep Generative Modeling for Neural Compression -- Chapter 11 From Large Language Models to Generative AI.
Sommario/riassunto	This first comprehensive book on models behind Generative AI has been thoroughly revised to cover all major classes of deep generative models: mixture models, Probabilistic Circuits, Autoregressive Models, Flow-based Models, Latent Variable Models, GANs, Hybrid Models, Score-based Generative Models, Energy-based Models, and Large

Language Models. In addition, Generative AI Systems are discussed, demonstrating how deep generative models can be used for neural compression. All chapters are accompanied by code snippets that help to better understand the modeling frameworks presented. Deep Generative Modeling is designed to appeal to curious students, engineers, and researchers with a modest mathematical background in undergraduate calculus, linear algebra, probability theory, and the basics of machine learning, deep learning, and programming in Python and PyTorch (or other deep learning libraries). It should appeal to students and researchers from a variety of backgrounds, including computer science, engineering, data science, physics, and bioinformatics who wish to get familiar with deep generative modeling. In order to engage with a reader, the book introduces fundamental concepts with specific examples and code snippets. The full code accompanying the book is available on the author's GitHub site: github.com/jmtomczak/intro_dgm The ultimate aim of the book is to outline the most important techniques in deep generative modeling and, eventually, enable readers to formulate new models and implement them.