1. Record Nr.	UNINA9910512174003321
Titolo	Advances in Data Science / / edited by Ilke Demir, Yifei Lou, Xu Wang, Kathrin Welker
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2021
ISBN	3-030-79891-7
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (374 pages)
Collana	Association for Women in Mathematics Series, , 2364-5741 ; ; 26
Disciplina	515.63
Soggetti	Mathematical optimization
	Calculus of variations
	Probabilities
	Numerical analysis
	Computer science - Mathematics
	Computer vision
	Mathematical statistics
	Calculus of Variations and Optimization
	Probability Theory
	Numerical Analysis
	Mathematical Applications in Computer Science
	Computer Vision
	Probability and Statistics in Computer Science
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Part I: Image Processing -- Two-stage Geometric Information Guided Image Processing (J. Qin and W. Guo) -- Image Edge Sharpening via Heaviside Substitution and Structure Recovery (L. Deng, W. Guo, and T. Huang) -- Two-step Blind Deconvolution of UPC-A Barcode Images (B. Kim and Y. Lou) -- Part II: Shape and Geometry -- An Anisotropic Local Method for Boundary Detection in Images (M. Lund, M. Howard, D. Wu, R. S. Crum, D. J. Miller, and M. C. Akin) -- Towards Learning Geometric Shape Parts (A. Fondevilla, G. Morin, and K. Leonard) -- Machine Learning in LiDAR 3D Point Clouds (F. P. Medina and R. Paffenroth) --

Part III: Machine Learning -- Fitting Small Piece-wise Linear Neural Network Models to Interpolate Data Sets (L. Ness) -- On Large-Scale Dynamic Topic Modelling with Nonnegative CP Tensor Decomposition (M. Ahn, N. Eikmeier, J. Haddock, L. Kassab, A. Kryshchenko, K. Leonard, D. Needell, R. W. M. A. Madushani, E. Sizikova, and C. Wang) -- A Simple Recovery Framework for Signals with Time-Varying Sparse Support (N. Durgin, R. Grotheer, C. Huang, S. Li, A. Ma, D. Needell, and J. Qin) -- Part IV: Data Analysis -- Role Detection and Prediction in Dynamic Political Networks (E. Evans, W. Guo, A. Genctav, S. Tari, C. Domeniconi, A. Murillo, J. Chuang, L. AlSumait, P. Mani, and N. Youssry) -- Classifying Sleep States Using Persistent Homology and Markov Chains: A Pilot Study (S. Tymochko, K. Singhal, and G. Heo) -- A Survey of Statistical Learning Techniques as Applied to Inexpensive Pediatric Obstructive Sleep Apnea Data (E. T. Winn, M. Vazquez, P. Loliencar, K. Taipale, X. Wang, and G. Heo) -- Nonparametric Estimation of Blood Alcohol Concentration from Transdermal Alcohol Measurements Using Alcohol Biosensor Devices (A. Kryshchenko, M. Sirlanci, and B. Vader).

| Sommario/riassunto | This volume highlights recent advances in data science, including image processing and enhancement on large data, shape analysis and geometry processing in 2D/3D, exploration and understanding of neural networks, and extensions to atypical data types such as social and biological signals. The contributions are based on discussions from two workshops under Association for Women in Mathematics (AWM), namely the second Women in Data Science and Mathematics (WiSDM) Research Collaboration Workshop that took place between July 29 and August 2, 2019 at the Institute for Computational and Experimental Research in Mathematics (ICERM) in Providence, Rhode Island, and the third Women in Shape (WiSh) Research Collaboration Workshop that took place between July 16 and 20, 2018 at Trier University in Robert-Schuman-Haus, Trier, Germany. These submissions, seeded by working groups at the conference, form a valuable source for readers who are interested in ideas and methods developed in interdisciplinary research fields. The book features ideas, methods, and tools developed through a broad range of domains, ranging from theoretical analysis on graph neural networks to applications in health science. It also presents original results tackling real-world problems that often involve complex data analysis on large multi-modal data sources. |