

1. Record Nr.	UNINA9911015963203321
Autore	Li Wuchen
Titolo	Variational and Information Flows in Machine Learning and Optimal Transport // by Wuchen Li, Bernhard Schmitzer, Gabriele Steidl, François-Xavier Vialard, Christian Wald
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Birkhäuser, , 2025
ISBN	3-031-92731-1
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (433 pages)
Collana	Oberwolfach Seminars, , 2296-5041 ; ; 56
Altri autori (Persone)	SchmitzerBernhard SteidlGabriele VialardFrancois-Xavier WaldChristian
Disciplina	515.35
Soggetti	Differential equations Mathematical optimization Calculus of variations Differential Equations Calculus of Variations and Optimization
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	- 1. A Dynamic Perspective of Optimal Transport -- 2. A Geometric Perspective on Diffeomorphic and Optimal Transport Flows and Their Applications -- 3. Wasserstein Dynamics in Mathematical Data Sciences -- 4. Flow Matching: Markov Kernels, Stochastic Processes and Transport Plans.
Sommario/riassunto	This book is based on lectures given at the Mathematisches Forschungsinstitut Oberwolfach on "Computational Variational Flows in Machine Learning and Optimal Transport". Variational and stochastic flows on measure spaces are ubiquitous in machine learning and generative modeling. Optimal transport and diffeomorphic flows provide powerful frameworks to analyze such trajectories of distributions with elegant notions from differential geometry, such as geodesics, gradient and Hamiltonian flows. Recently, mean field control and mean field games offered a general optimal control variational view on learning problems. The four independent chapters in this book

address the question of how the presented tools lead us to better understanding and further development of machine learning and generative models. .

---