

Gradient Flows

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"This book is devoted to a theory of gradient flows in spaces which are not necessarily endowed with a natural linear or differentiable structure. It consists of two parts, the first one concerning gradient flows in metric spaces and the second one devoted to gradient flows in the space of probability measures on a separable Hilbert space, endowed with the Kantorovich-Rubinstein-Wasserstein distance. The two parts have some connections, due to the fact that the space of probability measures provides an important model to which the "metric" theory applies, but the book is conceived in such a way that the two parts can be read independently, the first one by the reader more interested in non-smooth analysis and analysis in metric spaces, and the second one by the reader more orientated towards the applications in partial differential equations, measure theory and probability. TOC: 1. Introduction.- Part I. Gradient flow in metric spaces - 2. Curves and gradients in metric spaces - 3. Existence of curves of maximal slope - 4. Proofs of the convergence theorems - 5. Generation of contraction semigroups.- Part II. Gradient flow in the Wasserstein spaces of probability measures - 6. Preliminary results on measure theory - 7. The optimal transportation problem - 8. The Wasserstein distance and its behaviour along geodesics - 9. A.c. curves and the continuity equation - 10. Convex functionals - 11. Metric slope and subdifferential calculus - 12. Gradient flows and curves of maximal slope - 13. Appendix.- Bibliography" EAN/ISBN : 9783764373092 Publisher(s): Springer, Berlin, Birkhuser Format: ePub/PDF Author(s): Ambrosio, Luigi - Gigli, Nicola - Savare, Giuseppe

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