During the last decades, advances in both telecommunication and electronic technologies have resulted in new families of devices offering new services to the end user. Nowadays, smartphones, laptops, and in-car driving assistants that surround us, are all taking profit from these wireless advances. As a consequence, the mobile networks field emerged to deal with the challenges brought by coupling wireless technologies with mobility. It has quickly raised a high interest in the scientific community in the last years, leading to more specific domains like sensor networks, mobile ad hoc networks (MANETs), and vehicular networks (VANETs), among others.

This book is focussed on the use of evolutionary algorithms (EAs) to optimize several such aspects in mobile networks. This is a novel research field of great importance for the community, since it allows to clearly improve the existing solutions in such volatile, autonomous, and decentralized systems. Four important optimization problems are identified (single or multi-objective), addressing information dissemination optimization, energy use minimization, connectivity improvement, and mobility model enhancement.

The book shows how to efficiently address these problems with different state-of-the-art evolutionary algorithms, to assess and compare their performance. To this end, a generic framework for solving optimization problems in mobile ad hoc networks using evolutionary algorithms is described. For a complete understanding of the considered domains, comprehensive introductions to both mobile ad hoc networks and evolutionary algorithms are also included. Finally, the book contains two extensive surveys on optimization problems in mobile networks and their simulation.