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# Big Data Analytics for Time-Critical Mobility Forecasting

From Raw Data to Trajectory-Oriented Mobility Analytics in the Aviation and Maritime Domains

- Provides comprehensive descriptions of big data solutions for activity detection and forecasting very large numbers of moving entities spread across large geographical areas
- Details novel approaches and methodologies for mobility detection and forecasting, based on big data management and analysis
- Provides data management and mobility analytics solutions over voluminous and noisy data streams correlated with archived data

This book provides detailed descriptions of big data solutions for activity detection and forecasting of very large numbers of moving entities spread across large geographical areas. It presents state-of-the-art methods for processing, managing, detecting and predicting trajectories and important events related to moving entities, together with advanced visual analytics methods, over multiple heterogeneous, voluminous, fluctuating and noisy data streams from moving entities, correlating them with data from archived data sources expressing e.g. entities' characteristics, geographical information, mobility patterns, mobility regulations and intentional data. The book is divided into six parts: Part I discusses the motivation and background of mobility forecasting supported by trajectory-oriented analytics, and includes specific problems and challenges in the aviation (air-traffic management) and the maritime domains. Part II focuses on big data quality assessment and processing, and presents novel technologies suitable for mobility analytics components. Next, Part III describes solutions toward processing and managing big spatio-temporal data, particularly enriching data streams and integrating streamed and archival data to provide coherent views of mobility, and storing of integrated mobility data in large distributed knowledge graphs for efficient query-answering.

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