

Telegeoinformatics: Location-Based Computing and Services

The past decade has witnessed a rapid development and convergence of telecommunication and geoinformatics including geographic information system (GIS), global positioning systems (GPS) and remote sensing. The integration and convergence have been leading to a new emerging discipline Telegeoinformatics that focuses on location-based computing and services. As such this book is devoted to the discipline, and is a first of the kind that covers basic theories, technologies and applications about Telegeoinformatics. The book can be used as both textbook and reference book by researchers, professionals and students from various discipline backgrounds involving research and education related to location-based computing and services. The book is well structured and cross-referenced, although contributed by multiple authors.

By Bin Jiang

Telegeoinformatics is defined as discipline that emerges as a result of convergence of telecommunication and geoinformatics, and encompasses two important components: location-based computing and services. It provides the fundamental computing and communication infrastructure in computing on the one hand, and supports the set of technologies and data to process application-specific request in services on the other. Telegeoinformatics can also be regarded as a distributed mobile computing environment in which location-based computing and services are carried out. Based on the definition and observation, the book is divided into three parts: theories and technologies, integrated data and technologies, and applications. The first part covers fundamental theories and technologies for telecommunication and geoinformatics including GPS and remote sensing. This part starts with an overview of current development and trends on the convergence of telecommunication and geoinformatics by one of the editors. This chapter also presents and outlines relevant developments such as architecture for Telegeoinformatics, internet-based GIS, and spatial databases, as well as some important issue such as intelligent query analysis and adaptation. This first chapter is followed three chapters respectively focusing on basic and fundamental theories and technologies including remote sensing, GPS and tracking systems, and wireless communication. Basic techniques and technologies of remote sensing are covered, including aerial remote sensing, satellite remote sensing, more advanced laser scanning and techniques to extract information from various remotely sensed images for Telegeoinformatics. GPS and vari-

ous tracking systems are introduced, some important issues like accuracy and error sources are discussed. This part is completed with the fourth chapter on telecommunication mainly on wireless communication, its characteristics and potential usage in Telegeoinformatics. The second part of the book consists of four chapters on integrated data and technologies. Several emerging technologies are covered in this part such as Location-Based Computing, Location-Based Services, wearable systems and mediated reality technologies and mobile augmented reality systems. Each chapter is structured in

somehow a similar way, covering basic concept, the latest developments of technologies, and application potentials in Telegeoinformatics. The book is completed by three typical applications of Telegeoinformatics in emergency response, infrastructure maintenance, transportation, and a final chapter focusing on the impact and penetration of Location-based services or Telegeoinformatics in more general term. All these application areas have a great potential for Telegeoinformatics to be applied. These chapters narrow down to very concrete level as to how Telegeoinformatics can be applied to specific applications. A recent article carried out in *Nature* (Gewin 2004) identifies geotechnologies as one of the three most important emerging and evolving fields along with biotechnology and nanotechnology. The future opportunities on geotechnologies reply much, to my opinion, on the development of Telegeoinformatics. This book made a good start. My only criticism is that quality of the figures in the book can be improved; in particular some texts still refer to a color figure that are printed in black and whit, maybe a few color plates should be inserted in the next edition. However this does not prevent the book being a good one to be kept in your bookshelf.

Reference:

Gewin V. (2004), *Mapping Opportunities, Nature*, Vol. 427, 22 January 2004, pp. 376 – 377.

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