Vol. 34 No. 1(3) 2022

Sensors and Materials

Contents

Special Issue on Advanced Technologies for Remote Sensing and Geospatial Analysis: Part 1 Guest editors: Dong Ha Lee (Kangwon National University) and Myeong-Hun Jeong (Chosun University)

Preface

Research Paper of Special Issue (Sensor Applications)
Pyramidal Image Segmentation based on U-Net for Automatic Multiscale Crater Extraction (S & M 2807)
Zhonghua Hong, Ziyang Fan, Ruyan Zhou, Haiyan Pan, Yun Zhang, Yanling Han,
Jing Wang, Shuhu Yang, and Yanmin Jin237
Research Paper of Special Issue (<i>Related Technologies</i>)
Object Detection of Road Facilities Using YOLOv3 for High-definition Map Updates (S & M 2808)
Tae-Young Lee, Myeong-Hun Jeong, and Almirah Peter
Research Paper of Special Issue (Related Technologies)
Repositioning Technique Based on 3D Model Using a Building Shape Registration Algorithm (S & M 2809)
Jihun Kang, Jaehee Lee, Hongsik Yun, and Seungjun Lee
Research Paper of Special Issue (Sensor Applications) 3D Scene Management Method Combined with Scene Graphs (S & M 2810) Xiang Wang, Tao Shen, Liang Huo, Congnan Guo, and Su Gao277
Research Paper of Special Issue (<i>Related Technologies</i>) Three-dimensional Visualization of Particulate Matter Data Focused on Metropolitan and Gangnam Station Areas in South Korea (S & M 2811) Se Hun Oh, Seon Cheol Yu, and Jong Wook Ahn
Research Paper of Special Issue (Sensor Applications)
Visual-perception-driven Urban Three-dimensional Scene Data Scheduling Method (S & M 2812)
Xiang Wang, Tao Shen, Liang Huo, and Xiaoyong Zhang
Research Paper of Special Issue (Related Technologies)
Design of 3D Data Model of Underground Utilities in Korea Using CityGML Application Domain Extension (S & M 2813)
Da Woon Jeong, Seon Cheol Yu, and Jong Wook Ahn
Research Paper of Special Issue (Sensor Applications)
Indoor Visual Positioning Method Based on Image Features (S & M 2814)
Xun Liu, He Huang, and Bo Hu337

Research Paper of Special Issue (Sensor Applications)

Improving Positional Accuracy Using Relative Measurement between Android Smartphones (S & M 2815)
Mingyun Jang, Dokyun Kim, Sejung Jung, Kirim Lee, and Wonhee Lee
Research Paper of Special Issue (Sensor Applications)
Orthometric Corrections Using Gridded Gravity Data Derived from Digital Elevation Model (S & M 2816)
Hong Sool Lee, Kwang Bae Kim, Chang Uk Woo, and Hong Sik Yun
Research Paper of Special Issue (Sensor Applications)
Application of Shadow Matching Technique to Improve Smartphone-based Global Navigation Satellite System Positioning Accuracy (S & M 2817)
Dokyun Kim, Mingyun Jang, Kirim Lee, and Wonhee Lee
Research Paper of Special Issue (Sensor Applications)
Efficiency Analysis of Construction Automation Using 3D Geospatial Information (S & M 2818)
Joon Kyu Park and Keun Wang Lee
Joon Kyu Park and Keun Wang Lee
Joon Kyu Park and Keun Wang Lee
Joon Kyu Park and Keun Wang Lee

Special Issue on Advanced Technologies for Remote Sensing and Geospatial Analysis: Part 1

PREFACE



The explosive growth of sensor technology and the ubiquity of connected devices have led to a data-rich information society. Much of this data has both spatial and temporal components. Remote sensing and geospatial technology have been of great help for discovering interesting patterns and knowledge from massive amounts of data, allowing analysts to extract deeper insights through spatially enabled analytical methods and algorithms. This special issue aims to bring together a community of researchers and practitioners who are developing advanced technologies for remote sensing and geospatial analysis.



The first part of this special issue contains 14 papers, broadly categorized into four research areas: geospatial analysis with deep learning, 3D data modeling and visualization, positioning accuracy, and facility monitoring. The first two papers utilize deep learning for object detection, the next five papers propose 3D data modeling and visualization methods,

the following four papers deal with positioning accuracy, and the last three papers present how geospatial technology can be applied for facility monitoring.

We would like to extend our sincere gratitude to all the authors who contributed their valuable studies and the reviewers who invested their time in commenting on the studies, hence improving their quality. Finally, this special issue would not have been possible without the help of Ms. M. Sakano of MYU K.K. We are very thankful for her assistance in handling the entire publication process of this special issue.

Dong Ha Lee Kangwon National University Republic of Korea

> Myeong-Hun Jeong Chosun University Republic of Korea