KANGJOON CHO

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Department of Earth and Environment, Boston University

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EDUCATION

2021.01-Present: Ph.D. Program in Earth and Environment, Boston University

- Research Assistant at Center for Remote Sensing
- Advisor: Dr. Curtis Woodcock

2017.09-2019.08: Master of Science in Civil & Environmental Engineering, Seoul National University

- Thesis: Modulation and Regression based Hybrid Thermal Sharpening of Landsat-8 TIRS Imagery Using Fractional Urban Cover
- Full-time student researcher at Spatial Informatics & Systems Lab (Remote Sensing Group)
- Academic Advisor: Dr. Yongil Kim
- Major concentration: Remote Sensing, Thermal infrared data processing, Hyperspectral image analysis, Polarimetric SAR data processing

2010.03-2017.08: Bachelor of Science in Civil & Environmental Engineering, Seoul National University

- Honors Thesis: Precise Air Pollution Mapping using COMS (Communication, Ocean and Meteorological Satellite) Data

WORK EXPERIENCE

2019.09-2020.08: Research Associate, Engineering Research Institute, Seoul National University

RESEARCH EXPERIENCE

2021.05-Present: Research Assistant, New Opportunities Using the Landsat Temporal Domain: Monitoring Ecosystem Health, Condition and Use, USGS Landsat Science Team

- Collecting reference data for evaluation of amazon forest disturbance using multi-sensor data fusion with Landsat and Sentinel constellation.

2019.10-2020.03: Researcher, A Study on the Object Classification of Nuclear Facilities in Neighboring Countries Using Very-High Resolution Satellite Image and Object Based Image Analysis Software (supported by the Korean Institute of Nuclear Nonproliferation and Control)

- Developing an object-based image analysis technique to monitor a nuclear facility site in North Korea using very-high resolution satellite images (Worldview-2, 3 and KOMPSAT)

2019.08-2020.08: Project Manager, A Study on Establishment of Spatial Information Roadmap for Supporting the Infrastructure Construction of the Unified Korean Peninsula (supported by the National Geographic Information Institute)

- Establishing spatial information building plan for unified Korean peninsula due to rapidly changing political situation in the Korean peninsula
- Investigating North Korea's spatial information, such as technology level, current status, and infrastructure construction plan, and establishing a roadmap based on the documents

2019.05-2019.12: Researcher, Development and Demonstration of Next Generation Land Information Model Using Multi Sensor and GeoAI Technology (supported by the Spatial Information Research Institution of Korea Land and Geospatial Informatix Corporation)

- Applying object-based hyperspectral analysis to detect the change of cadastral map from airborne and drone hyperspectral images.

2017.05-2018.03: Researcher, Damage Assessment of Large-scale Complex Disaster using Satellite Constellation (supported by the National Research Foundation of Korea under Grant NRF-2015M1A3A3A02014673)

- Developed a disaggregation technique for thermal infrared data and damage assessment techniques using thermal infrared data from land surface temperature mapping
- Improved the change detection technique for damage assessment using quad-polarimetric SAR data with object-based analysis

2016.06-2019.05: Researcher, A Study on Hyperspectral Image Processing Techniques for Crop Type Classification and Quality Assessment (supported by the National Research Foundation of Korea under Grant NRF-2016R1A2B4016301)

- Proposed a new Hyperspectral Narrow Index to investigate soil moisture and organic matter content from ground-based hyperspectral data
- Simulated Sentinel-2 products using an airborne hyperspectral image and conducted an analysis of Top-of-Atmosphere and Bottom-of-Atmosphere reflectances to evaluate the effectiveness of the "Sen2cor" module for atmosphere correction on agricultural land

2016.05-2016.10: Primary Investigator, Precise Air Pollution Mapping using COMS Data (supported by SNU Undergraduate Research Program from Research Affairs of Seoul National University)

- Estimated large-scale PM2.5 using Aerosol Optical Depth (AOD) from COMS datasets and established the relationship between AOD image and PM2.5 reference data

TEACHING AND MENTORING EXPERIENCE

2016.03-2017.02: The Peer Tutoring Program supported by the College of Engineering, Seoul National University

Tutoring Certificate

- The 20th tutor for Fall Semester 2016 at the College of Engineering, Seoul National University
  Tutoring area: Calculus 2, Statistics for Civil & Environmental Engineers
- The 19th tutor for Spring Semester 2016 at the College of Engineering, Seoul National University
  Tutoring area: Physics 1, Mechanics of Materials and Lab

HONORS AND AWARDS

Commendation Letter

- Korean Society of Surveying, Geodesy, Photogrammetry and Cartography (2017)

Best Paper Award

- Second Prize, Undergraduate Thesis Competition,
  Department of Civil and Environmental Engineering, Seoul National University (2016)
- Grand Prize, The Paper Contest of Writing in Science & Technology Class,
  Faculty of Liberal Education, Seoul National University (2014)

SCHOLARSHIPS

Undergraduate

- 2017 Spring: Eminence Scholarship, Seoul National University

- 2016 Fall: Alumni Association of Department of Civil Engineering SNU Scholarship
- 2015 Spring: SNU Development Fund Scholarship
- 2014 Fall: Merit-based Scholarship, Kwanak Corporation

Graduate

- 2018 Spring / Fall: Brain Korea 21 Plus fellowship, Department of Civil and Environmental Engineering, Seoul National University
- 2017 Fall / 2018 Spring: Merit-based Scholarship, Seoul National University

TECHNICAL SKILLS

Programming: MATLAB, R, Python, Google Earth Engine (JavaScript)

Image Processing Software: ENVI, ArcGIS, ERDAS, SNAP, PolSARpro, eCognition, QGIS

LANGUAGES

Korean: Native

English: Proficient

PEER-REVIEWED PUBLICATIONS

Cho, K.; Kim, Y. Simulation of Sentinel-2 Product Using Airborne Hyperspectral Image and Analysis of TOA and BOA Reflectance for Evaluation of Sen2cor Atmosphere Correction: Focused on Agricultural Land. *Korean Journal of Remote Sensing*. 2019, 35(2), 251-263. (In Korean with English abstract)

Cho, K.; Kim, Y.; Kim, Y. Disaggregation of Landsat-8 Thermal Data Using Guided SWIR Imagery on the Scene of a Wildfire. *Remote Sensing*. 2018, 10, 105.

CONFERENCE AND SEMINAR

Cho, K.; Kim, Y.; Kwak, T. Object Based Hyperspectral Image Analysis for Cadastral Mapping. The 40th Asian Conference on Remote Sensing, Deajeon, South Korea, 14-18 October 2019.

Cho, K.; Kim, Y. Sharpening Algorithm of Landsat-8 TIR Data for the Urban Area. International Symposium on Remote Sensing 2019, Taipei, Taiwan, 17-19 April 2019.

Kim, Y.; **Cho, K.**; Oh, J.; Kim, Y. The 2011 Tohoku Earthquake and Tsunami-induced Coastal Damage Assessment using L-band Polarimetric Features using Random Forest Classifier: An efficient-oriented reduction strategy. The 3rd International Water Safety Symposium, Incheon, South Korea, 19-23 June 2018.

Cho, K.; Kim, Y. Estimation of Land Surface Temperature for Assessing Urban Heat Island Effect. International Symposium on Remote Sensing 2018, Pyeongchang, South Korea, 09-11 May 2018.

Cho, K.; Kim, Y.; Kim, Y. Quantitative Comparison of Sentinel-2 Level-2A Product and Simulated Imagery from Airborne Hyperspectral Data. ESA 2nd Sentinel-2 Validation Team Meeting, Rome, Italy, 29-31 January 2018.

Cho, K.; Kim, Y.; Kim, Y. Disaster Damage Estimation using Change Detection Method with PolSAR Imagery and Object based Analysis. The 2017 Fall Conference of the Korea Society of Remote Sensing, Yesan, South Korea, 02-03 November 2017. (In Korean)

Cho, K.; Kim, Y.; Kim, Y. Soil Condition Analysis using a Ground-based Hyperspectral Data. International Symposium on Remote Sensing 2017, Nagoya, Japan, 17-19 May 2017.

Cho, K.; Kim, Y.; Kim, Y. Mapping of Fine Particulate Matter Concentration Using COMS Data. The 2016 Fall Conference of the Korea Society of Remote Sensing, Chungju, South Korea, 03-04 November 2016. (In Korean)

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