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Optimized image collection planning for KOMPSAT

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KARI (Korea Aerospace Research Institute) has four Low-Orbit Satellite as KOMPAST (KOrea Multi-Purpose Satellite)-2, KOMPSAT-3, KOMPSAT-3A and KOMPSAT-5 on operation at present. Because each KOMPSAT has different sensor characteristics, KOMPSAT series provide high-level and various services for satellite image. But above all, we should consider optimized image collection planning problem for KOMPSAT-2 to minimize human resource. Image collection planning must be considered to minimize human resource and maximize satellite resource. And, because image collection planning is considered not as single satellite but as multi-satellite, the process will be so complicated. KOMPSAT-2 operates under several complicating operational constraints such as camera roll tilt, satellite resource availability, weather conditions, and order priorities. The satellite image collection planning problems are known to be difficult in practice. Because customer requests usually span large geographical areas and their images can only be obtained from certain satellite orbits, each of the requested areas is usually divided into several small-size continuous-observation areas, which are called segments. Under the strip mode operation, the satellite collects the segments one at a time. The length of a segment is determined beforehand by an expert based on the configuration of the region of interests before the image collection planning starts. Given a set of several segments, many of which are overlapping, the planning problem becomes a selection problem to choose as many non-overlapping segments as possible under several operational constraints.

Biography

Heejin has completed her Master's Degree from Korea University of Electronical engineering and worked at Samsung Electronics. Her major is equalizer algorithm of mobile communication. She developed the receiving system and operation system of satellite at KARI. At present, she works as TLO (Technolgy Licensing Organization) and manages the overall patents of KARI.

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