



## CALL FOR PAPERS

### IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing Special Issue on

#### “Computational Intelligence and Advanced Learning techniques in Remote Sensing”

With the advancement and development in more sophisticated remote sensing sensor systems, there is a need to build an intelligent data processing system using Computational Intelligence and Advanced Learning (CI-AL) for effective and efficient ways of solving a wide range of problem areas in remote sensing (RS). The system is said to be intelligent if it can perceive its goals, is automatic in processing, learns from the environment and past experiences, and adapts to accommodate fast-changing environments and goals. Each task in an intelligent system is interesting and valuable in its own right, but building such system can facilitate a fundamental shift in the way we see them for solving complex Satellite Remote Sensing (SRS) and Unmanned Aerial Vehicle Remote Sensing (UAV-RS) problems. Neural Networks (NNs), specifically Deep Learning NNs, Spiking NNs, and Extreme Learning Machines, Type-1 and Type-2 Fuzzy Logic (FL) systems as well as gradient-free Swarm Intelligence (SI) techniques like Genetic Algorithms, Particle Swarm Optimizations, etc., play an important role in decision-making and modelling in RS related problems.

This special issue emphasis is on the development of CI-AL techniques for solving SRS and UAV-RS problems and broadening the set of application domains to which they can be usefully applied. CI-AL is a set of nature-inspired algorithms based on, e.g., fuzzy logic, neural networks and swarm intelligence for solving complex real-world problem. The main advantage of CI-AL over conventional methods is its stochastic nature, which can be used to obtain an optimal solution for any dynamic variation in RS. Also, this issue deals with different CI-AL techniques to solve RS problems for big data.

CI-AL in RS invites authors to submit their contributions in the following topics (but not limited to):

- Novel CI-AI algorithms and methodological tools for image enhancement, image registration, image fusion, classification, clustering, feature extraction, image segmentation, estimation, regression, spectral-spatial methods, etc.
- Data stemming from Satellite platforms; different modalities (radar, optical, LIDAR) and different sensors (AVHRR/MODIS/VIIRS, Landsat/Sentinel, SAR/POLSAR, hyperspectral, IKONOS, QuickBird, etc). Applications in forestry, urban planning, disaster mapping, land cover dynamics, monitoring of the environment, mining and mineral exploration, oil spill detection, road/building extraction, etc.
- Miniature UAV platform (rotor-based or fixed-wing) coupled with different sensors for RS includes: visual RGB camera, thermal IR camera, multispectral camera, hyperspectral camera, LiDAR, etc. Applications in aerial mapping, precision agriculture, water quality, vegetation analysis, environmental monitoring, object detection, powerline monitoring, search and mitigation, network tower inspection, 3D surface modelling, pipeline inspection, radiation monitoring, etc.

#### **Format**

All submissions will be peer reviewed according to the IEEE Geoscience and Remote Sensing Society (GRSS) guidelines. Submitted articles should not have been published or be under review elsewhere. Submit your manuscript on <http://mc.manuscriptcentral.com/jstars>, using the Manuscript Central interface and select the “CI-AL in Remote Sensing” special issue manuscript type. Prospective authors should consult the journal site for guidelines and information on paper submission. All submissions must be formatted using the IEEE standard format (double column, single-spaced). A template in this format can be downloaded at [http://www.ieee.org/publications\\_standards/publications/authors/author\\_templates.html](http://www.ieee.org/publications_standards/publications/authors/author_templates.html). Please note that IEEE J-STARS applies a mandatory page over length charge of \$200 per page (beginning with page 7 and beyond) for GRSS members, and \$230 for all others.

#### **Schedule**

February 28, 2019	Full paper submission deadline
February 2020	Publication date

#### **Guest Editors**

J. Senthilnath, A\*STAR, Singapore (J\_Senthilnath@i2r.a-star.edu.sg)

Jon Atli Benediktsson, University of Iceland, Iceland (benedikt@hi.is)

Jocelyn Chanussot, Grenoble Institute of Technology, France (jocelyn.chanussot@gipsa-lab.grenoble-inp.fr)