The recent computing performance revolution has driven improvements in sensor, communication, and storage technology. Imaging and Earth Observation datasets at the petabyte scale are now available in commercial clouds, with new sensors spanning the electromagnetic spectrum being deployed at a rapid pace. Cloud computing and storage, combined with recent advances in machine learning, are enabling understanding of our world at a scale and at a level of detail never before feasible. We now can sense everywhere, all the time and by anyone:

- In cities, on farms, in the sky, under the water and throughout the universe
- By individuals, governments, corporations and other entities.

Making use of this mass of images is leading to the development of novel image handling techniques. This includes unique methods of acquiring, storing, representing, retrieving, analyzing, and manipulating large amounts of image and video data in 2 or more dimensions. The 2018 IEEE AIPR Workshop will explore these reemerging intersections and synergies between imaging, Big Data and cloud compute & hardware advances, continuing the workshop’s long tradition of bringing together researchers and developers who span the disciplines and work in labs across academia, industry, and government. The Workshop Committee invites papers that address any aspects of handling large sets of image data, as well as those engaged in seeking improved methods of extracting information from these large sets, including new techniques, algorithms, analysis, applications, visualizations, systems, theoretical insights and hardware developments. Topics include, but are not limited to, the following:

- Image-based autonomous capabilities in transportation, medicine, robotics, manufacturing, defense, space
- Image understanding: captioning, inference, retrieval, summarization, scene modeling
- Situational awareness: biometrics, surveillance, anomaly detection, environmental monitoring, video analytics, mixed and augmented reality
- Remote sensing: space-time processing, change detection, natural resource monitoring, enabling cloud applications
- Medical and biological applications: diagnosis, intervention, prognosis, telediagnostics, global health, scientific discovery
- AI tools for assisted image analysis, deep learning, visualization, performance metrics and evaluation methodologies
- Sensors, including: EO, IR, SAR, LIDAR, etc.
- Data Parallel architectures
- Advanced AI and machine hardware developments
- Data fusion and multi-source analysis

Abstracts (150-300 words) are now being accepted through our online submission site: [https://cmt3.research.microsoft.com/AIPR2018/](https://cmt3.research.microsoft.com/AIPR2018/). Questions (or if there are problems with the online submission) may be emailed to: Programchair2018@aipr-workshop.org

**Deadline for abstracts:** 31 May 2018

The Workshop will include oral and poster presentations, several keynote talks that provide in-depth overviews of the fields, and a debate between two experts on a fundamental question. Written papers will be required (due after the workshop) and will be indexed in IEEE Xplore. AIPR 2018, the 47th annual workshop, is sponsored by the IEEE Computer Society Technical Committee on Pattern Analysis and Machine Intelligence, and organized by the AIPR Workshop Committee with generous support from other sponsors. Updates and additional information can be found at [www.aipr-workshop.org](http://www.aipr-workshop.org)