IEEE Data Compression Conference 2016

Special Session on Genomic Information Compression

The recent advances in genome sequencing technology have led to the proliferation of high throughput genome sequencing machines which are dramatically reducing the costs (both in terms of time and resources) of sequencing an entire human genome. This is opening the path to ambitious applications such as genomic medicine, biomarkers discoveries, pathogen surveillance and cancer diagnostic and many other applications. However, there remain challenges, scientific as well as computational, that need to be addressed for this technology to find its way into everyday practice in healthcare and medicine. One of the challenge is to cope with the flood of sequencing data which in part is resolved by buying more storage but at one stage this is neither reasonable nor cost-efficient, moreover when the very same data are reanalysed several times over a long period of time. Appropriate data representation and compression is key for the future of precision medicine and the use of genomics in every day clinical and basic research activities.

The IEEE Data Compression Conferences invites the submission of papers on the subject of genomic information compression covering, but not limited to the following topics:

- New and improved approaches to reference based compression
- New and improved approaches to *de-novo (non reference-based)* compression
- Lossy Quality Scores compression and impact on downstream analysis
- Low power implementations of genomic information processing
- Parallel implementations of genomic processing on multi and many-cores platforms
- Hybrid architectures for genomic information compression
- Statistical properties of genomic information and impact on compression performance
- Genomic data compression as enabler of large scale genomic medicine and health care
- Data structures and formats for optimal genomic information representation
- Genomic information compression in the petabyte scale
- High performance computing and genomic information compression
- Long term preservation and resiliency of compressed data
- Security implications of genomic information compression: integrity preservation, controlled access, traceability etc.

Dates:

Abstract submission deadline: 02 Nov 2015

Final submission deadline: 04 Jan 2016

Notification of acceptance date: 16 Dec 2015

CfP website: http://www.cs.brandeis.edu/~dcc/Call.html