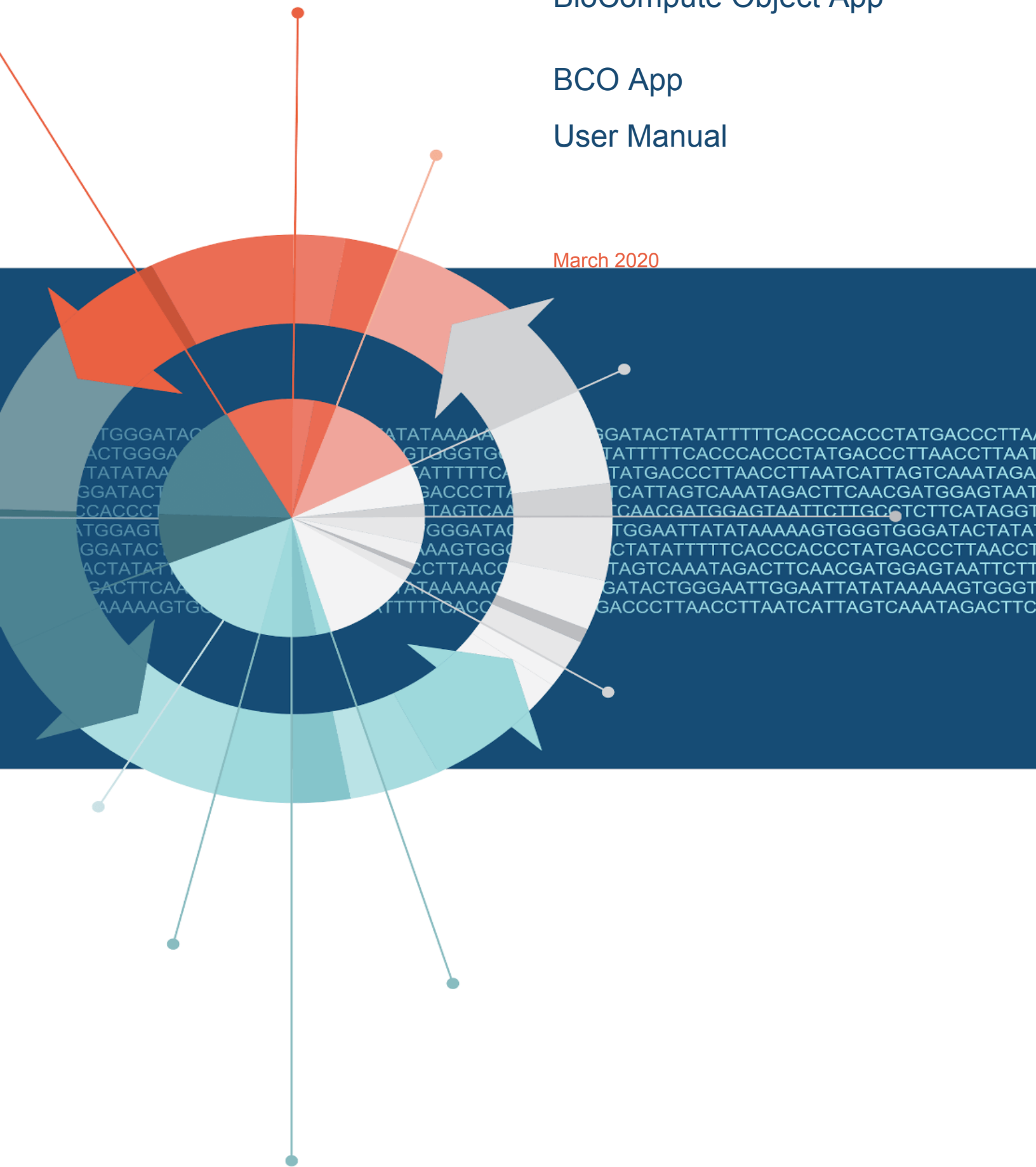# BioCompute Object App

BCO App

User Manual

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1   Introduction

The BCO App provides tools for generating, reviewing, and validating BioCompute Objects (BCOs). The BCO App can generate BioCompute Objects from user text input, workflows written in Common Workflow Language (CWL), and from CWL and task information generated on the Cancer Genomics Cloud. The BCO App also includes tools for reviewing and validating BioCompute Objects stored locally or on the cloud. Our goals in providing the BCO App are to encourage further development of the BCO standard, promoting the use of CWL to document complex bioinformatics workflows, and to facilitate the use of BCOs in operational settings; including developing the application to support FDA regulatory submissions.

This user manual provides a brief introduction into BioCompute Objects, instructions for installing BCO App, and an overview of BCO App features.

In reviewing the user manual you will learn how to:

- Generate BCOs from text or CWL files
- Generate BCOs from CWL workflows or Task information from your Seven Bridges Platform project
- Download generated BCO JSON file to your local machine
- Generate PDF reports from BCO JSON files
- Upload BCO file to any of the Seven Bridges platforms
- Publish BCOs to your GitHub account.

2   BioCompute Objects

The BioCompute Object standard is an emerging standard that aims to facilitate the communication of Next Generation Sequencing (NGS) analyses by providing a structured way for documenting and communicating complex analyses as commonly seen in bioinformatics and precision medicine applications. The BCO standard defines 33 fields across nine domains (ex. identification and execution domains). The BCO JSON file is designed to be both human and machine readable. BCO App supports BioCompute specification v1.3.0. See the appendix or the BioCompute Object website for additional details.

2.1   BCO App Overview

The current version of the BCO App expands upon our initial prototype developed for the precisionFDA BioCompute Object Challenge. The precisionFDA challenge required the submitted tools to support the display, creation, and validation of BCOs. Our current tool also includes support for selecting inputs from both your local machine and from files stored on the Cancer Genomics Cloud, as well as selecting inputs from the suite of Seven Bridges Platforms. BCO App supports interactive as well as semi-automated BCO