

Structural Variant Detection in Animal Populations

In this workshop, Ryan Layer and Murad Chowdhury will cover the basics of Structural Variant (SV) calling with Illumina short-read sequencing data. We will focus on the additional steps required for calling SVs in non-human populations with lower quality reference genomes and fewer genome annotation resources. We will go over each step of the SV calling pipeline, including alignment of DNA sequencing data to a reference genome, calling SVs, filtering methods for false-positive SV calls, and the visualization of SV genomic loci for manual curation call sets.

The workshop will include tutorials on using standard command-line tools to take your sequencing data (fastq) through obtaining SV calls in the Variant Call Format (VCF). We will also show how to combine these steps to create reproducible data pipelines using the Snakemake workflow management system. After this workshop, attendees will understand better how to call and curate SVs in their target populations.

Attendees should have a basic knowledge of Unix command line navigation. AG2PI previously hosted a workshop series dedicated to this: **Workshop #7: Unix Skills and Git Skills**. Recordings of these workshops are available at: <https://www.ag2pi.org/workshops-and-activities/workshop-2021-09/>

About the Presenters



Ryan Layer, assistant professor in Computer Science and Biofrontiers Institute at the University of Colorado-Boulder, focuses his research on developing algorithms for analyzing large-scale genetic datasets. He is also dedicated to improving the quality and reproducibility of software produced by the scientific community.



Murad Chowdhury is a staff scientist at the Layer Lab in the University of Colorado- Boulder Biofrontiers Institute. Murad's research interests are in the application of machine learning methods to genomic data. Recently, he has focused on developing methods to improve the quality of germline and somatic SV callsets through the detection of false positive calls.

Dec. 2, 2021

1:00–3:00 PM

(Central Time, -6 GMT)

Limited attendance to 100 participants

Purpose: Learn the basics of Structural Variant calling and the steps involved to create data pipelines for successful workflow management.

Register for this Zoom virtual workshop:

<https://user.cyverse.org/workshops/84>

Upon registration, you will receive a confirmation email with information about joining the meeting.

A recording will be available at a later date at: www.ag2pi.org/