# NextPolish on HPC

### What is NextPolish?

NextPolish is a software tool for correcting errors in genome sequences generated by long-read sequencing technologies, such as third-generation sequencing (TGS). It is specifically designed for correcting base errors (SNV/Indel) in the genome, and uses a stepwise approach that can be applied to long-read data alone or in combination with short-read data.

The software contains two core modules: a base-calling module and an error-correction module. The base-calling module uses machine-learning algorithms to assign the most likely nucleotide at each position of the raw long reads. The error-correction module then utilizes the base-calling results and the information from both long reads and short reads to correct errors in the genome.

Links:

Official Website

### **Versions Available:**

The following versions are available on the cluster:

• nextPolish v1.3.1

#### How to load NextPolish?

To load NEXTPOLISH, use the following commands:

#Load the NEXTPOLISH module module load bio/nextpolish

To verify if the module and dependencies are loaded correctly, use the following command.

#Show all the modules loaded module list

This should list all the NextPolish dependencies that are loaded – miniconda in this case.

#### How to use NextPolish?

See the command line arguments for the software using following syntax:

# Command Line Args
nextPolish -h

To run nextPolish, users must create a configuration file with all the parameters mentioned. See the <u>tutorial</u> for more info about configuration file.

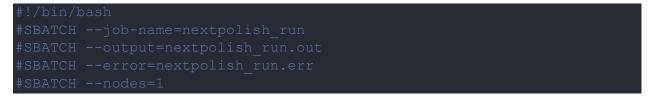
For this demonstration, copy all the test files from following directory,

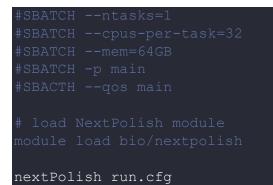
# Copy the files to test directory
cp -r /share/apps/NextPolish/NextPolish/test data ~/test/

Go to the directory and edit following parameters in run.cfg,

parallel\_jobs = 4 multithread jobs = 8

Use the following slurm script to submit job to the scheduler,





All the output file should be in same directory as the script and test files.

# Where to find help?

If you are confused or need help at any point, please contact OIT at the following address.

https://ua-app01.ua.edu/researchComputingPortal/public/oitHelp