

PERFORMANCE:

From the user's perspective, they can find three major improvements of DS1.5 regarding the performance. First of all, DS1.5 is much faster than DS1.0. The overall optimization and the context-independent pore model have sped up for a typical run 50 times with little simulation quality compromise, which allows the users to do large-scale read simulations. Secondly, with the help of the low-pass filter, the simulated signals from the enhanced signal simulator can mimic the real-world signals much better than those from DS1.0. Detailed results and comparisons can be found in Supplementary Section S3.

Thirdly, because of the multiple updates in DS1.5, the profile of the simulated reads from DS1.5 can keep up with that of the real reads generated from the newest Nanopore chemistry.

RESULT:

In this work, They reported a new version of the previously published work on simulating the Nanopore sequencing, DeepSimulator1.5. In this updated version, they have updated all the three modules of DeepSimulator significantly with several crucial overall optimizations, resulting in a more powerful, quicker and lighter simulator. This major update can remarkably broaden its applications in large-scale sequencing simulations as well as studies focusing on the Nanopore signals. In the future, they will further equip DeepSimulator with the capability to simulate RNA sequencing and DNA modifications