SimBit: A high performance, flexible and easy-to-use population genetic simulator

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Abstract

SimBit is a general purpose and high performance forward-in-time population genetics simulator. SimBit has been designed to be able to model a wide diversity of complex scenarios from a simple set of commands that are very flexible. SimBit also comes with a R wrapper that simplifies the management of an entire research project from the creation of a grid of parameters and corresponding inputs, running simulations and gathering outputs for analysis. Implementing various representations of the individual's genotype allows SimBit to sustain a high performance in a wide diversity of simulation scenarios. SimBit's performance was extensively benchmarked in comparison to SLiM, Nemo and SFS_CODE. No single program systematically outperforms the others but SimBit is most often the highest performing program and maintains high performance in all scenarios considered.

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