Dear Editor,

We are pleased to submit our manuscript, "Asymptotic Benchmarking and Performance Testing with the `atime` Package," for consideration for publication in the R Journal.

The primary contribution of this manuscript is the introduction of the `atime` package, which facilitates asymptotic benchmarking and performance testing for R code. Unlike traditional benchmarking tools that focus solely on fixed data sizes, the `atime` package provides the capability to measure time and memory usage across sequences of increasing data sizes. This feature allows users to estimate complexity classes (big-O notation) and evaluate empirical performance against theoretical expectations.

Key contributions of our work include the following:

1. Performance Testing: The manuscript demonstrates how the `atime` package can be utilized for continuous performance testing of R packages and includes comparisons with similar packages such as touchstone.

2. Comparative Analysis: The manuscript provides a detailed comparison of the `atime` package with other benchmarking and performance testing tools, including bench::press() in R.

3. Real-World Applications: The manuscript discusses how atime has been used to test and improve performance in data.table and base R.

This work has significant implications for developers and users of statistical software, enabling the identification of inefficiencies and promoting the development of scalable R functions. For reproducibility, the submission package includes the necessary R scripts and a comprehensive workflow to reproduce all results presented in the manuscript.

We suggest the following reviewers for this manuscript, as they possess expertise in benchmarking, performance testing, and R package development:

- Davis Vaughn davis@posit.co
- Lorenz Walthert lorenz.walthert@icloud.com
- Jacob Wujciak-Jens jacob@wujciak.de

Thank you for your time and consideration of our manuscript. We look forward to your feedback and are hopeful that this work will make a valuable contribution to the field.

Sincerely,

Doris Afriyie Amoakohene