

Computer Science Department  
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South Hadley, MA 01075

July 26, 2021

Professor Di Cook  
Editor-in-Chief  
The R Journal

Dear Professor Cook,

There is a growing recognition of the need for scientific results to be trustworthy and reproducible. A key element for both of these goals is knowing the provenance of the scripts and their results: precisely how were the results computed. On behalf of my co-authors, I am submitting "Making Provenance Work for You" as an article describing several related add-on packages for R. These packages implement provenance collection for R scripts and tools that use the collected provenance to provide novel functionality for R programmers.

More specifically, the paper describes rdtLite, a tool that collects provenance as an R script executes. The provenance includes information about the script, the environment in which it is executed, the input and output of the script, and an execution trace of the top-level statements within the script. The provSummarizeR package provides a concise textual summary of the collected provenance. The provViz package provides a graphical visualization of the provenance. The provDebugR package uses the collected provenance to help programmers debug their code. The provExplainR package compares the provenance from two executions to help the programmer understand changes between two executions. The paper also describes two packages that can help others develop new provenance-based tools: provParseR provides a convenient API to the provenance collected by rdtLite, and provGraphR provides an API to perform lineage queries of the provenance.

We feel that these packages make a novel contribution to the R ecosystem as they allow for easy collection, examination, and sharing of provenance that is not currently available to R programmers and would be of interest to readers of the R Journal.

Thank you for your time and consideration.

We look forward to your reply.

Sincerely,

A handwritten signature in black ink, reading "Barbara Lerner". The signature is fluid and cursive, with a long horizontal stroke at the end.

Barbara Lerner