

Comparison of Matrix Algebra Computational Performance Between Base R and RcppEigen

Costa Stavrianidis

Abstract

In this study, we compare the performance of various matrix algebra computations across functions in base R and functions created using the RcppEigen package. The goal is to quantify the efficiency differences between the two for computations that complete the same goal.

Introduction

Compiled programming languages have their programs compiled into machine-readable instructions before execution. Examples of compiled languages include C, C++, Rust, and Fortran. Interpreted languages have their programs read and executed by an interpreter rather than translating the program into machine-readable instructions. Examples of interpreted languages include Python, R, and JavaScript.

Both types of languages contain their own advantages and disadvantages. The advantage of creating a compiled program is that it is faster than an interpreted program at execution.