

Abstract

Functional Programming: An Untapped Tool for Linear Algebra? – Diarmuid McDonnell

This research proposes the idea that functional programming is a suitable tool for solving linear algebra problems. The Lights Out game is used to explore this idea. This paper shows how Lights Out is a non-trivial linear algebra problem suitable for testing the capabilities of functional programming as a tool for computing linear algebra functions. An application is built to solve Lights Out using the functional programming language Haskell. The results presented in this paper show that functional programming is well suited for solving linear algebra problems and could rival the use of imperative languages. Some future work is also proposed to improve upon the work carried during this research.