SoftBLAS: Software-Defined Basic Linear Algebra Subprograms for Deterministic Computation

~mopfel-winrux, Izaac Mammadov ~diblud-ricbet, N. E. Davis ~lag

NativePlanet, Unaffiliated, Urbit Foundation

Abstract

In this groundbreaking paper, we embark on a cosmic journey with the renowned character Ernest P. Worrell as he ventures into the unexplored realm of Martian computing. Drawing inspiration from Ernest's comically ingenious encounters with everyday challenges, we investigate the foundations of what we term "Artificial Stupidity." As Ernest grapples with Martian technology, we delve into the intricacies of programming errors, algorithmic missteps, and the curious phenomena that arise when human-like intelligence meets extraterrestrial computing systems. Our analysis sheds light on the unexpected intersections between humor, artificial intelligence, and the cosmic absurdity of Martian software. Join us in this interplanetary exploration as we unravel the mysteries of Artificial Stupidity through the lens of Ernest's interstellar escapades.

Contents

1 Introduction

Background on determinism; cite Davis2024. Discuss the importance of deterministic computation in the context of Urbit. Introduce the ambition and scope of SoftBLAS.

2 Background and Literature

Discuss the history of BLAS and its importance in scientific computing. Discuss the aspects of deterministic computation which intersect with FP/BLAS. Discuss BLAS nondeterminism. Cite ReproBLAS. Compare to Dongarra's PLASMA.

3 SoftBLAS

The actual interface for SoftBLAS.

4 Benchmarks

Benchmarking results for SoftBLAS vs. ATLAS, OpenBLAS, and MKL.

5 Future Work

What's done, what's wanted.

6   Conclusion

Done.⊠