

Parallel and Distributed Computing

Alberto Paoluzzi – Lecture 13 – Julia: Using arrays

Mon 04-04-2022

Julia High Performance: **Using Urrays**

From: Sengupta, Avik. [Julia High Performance: Optimizations, distributed computing, multithreading, and GPU programming with Julia 1.0 and beyond](#), 2nd Edition. Packt Publishing. Kindle Edition.

1 Julia High Performance: Chapter 6:

Section 1

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Using Arrays

- 1 Array **internals** in Julia

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It should not be a surprise to the reader of this book that **array operations** are often the **cornerstone** of **scientific and numeric programming**.

While arrays are a **fundamental data structure** in **all programming**, there are **special considerations** to bear in mind when used in **numerical programming**.

One particular difference is that **arrays are not** just viewed as **entities** for **data storage**.

Rather, they may **represent** the **fundamental mathematical structures** of **vectors** and **matrices**.

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In this chapter, we will discuss **how to use arrays** in Julia in the **fastest possible way**.

When you **profile** your program, you **will find** that in many cases, the **majority** of its **execution time** is spent in **array operations**.

Therefore, the **discussions in this chapter** will likely turn out **to be crucial** in creating **high-performance Julia code**.

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- Writing **generic library functions** using arrays