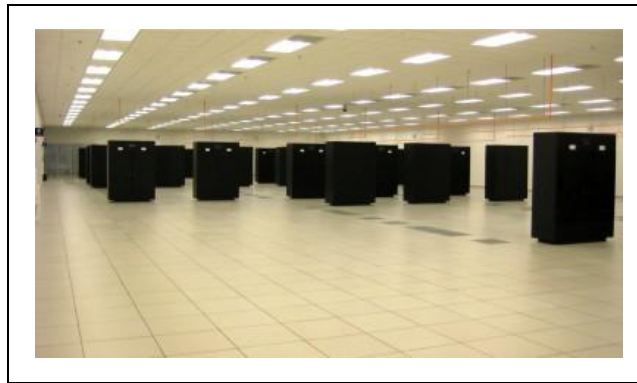


# Parallel Processing and Why it Matters to Everyone

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Terms like "Parallel Processing" and "High Performance Computing" used to be part of the realm of advanced computing and experts in computer science. This is no longer the case. Even your cell phone has 2 processing cores, and standard computers (laptops, desktops) have from 4 to as many as 12 processing cores. If you count the graphics card, then a standard computer has many hundreds of processing elements. This growth in the number of processing cores will continue for the foreseeable future.



So if commodity hardware has multiple processors, everyone should be concerned about how to take advantage of these processors for their research endeavors, no matter the subject area. *Every* area of research has computational problems that are better addressed, sometimes only addressed, with parallel processing.

We will discuss what it means to have multiple processors, how you can take advantage of them, how they can be both a blessing and a curse, and the standard tools that are available to help you. Finally we will show you some demonstrations using Python (which is definitely not considered "high performance") and iPython (a tool) to take advantage of multiple processors and effectively solve your problems.