

MatLab Workshop: Parallel and Distributed Computing

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MATLAB is a high level structured language and an interactive development environment for technical computing and algorithm development. It has enabled scientists and engineers to efficiently process and analyze data, develop and deploy algorithms and applications. Furthermore, Parallel and Distributed Computing capabilities available recently in MATLAB, allow users to solve computationally and data intensive problems by taking advantage of the latest multiprocessing systems: multicore desktops, computer clusters, grid and cloud computing services. It is now possible to interactively prototype and develop distributed and parallel applications, briefly touch upon the parallel data structures, such as distributed arrays, and programming constructs such as parallel for loops, parallel numeric algorithms and message passing functions. Using typical numerical computing problems as examples, this workshop describes how to use MATLAB parallel tools to take full advantage of the performance enhancements offered by multicore / multiprocessor computing environments. Presenter will demonstrate hands - on examples in multithreading computation of basic linear algebra functions and element wise operations on matrices, optimization of an expensive objective and constrain function, Monte Carlo simulation of a stochastic differential equation and FFT computation on distributed arrays.