Undocumented Matlab

unbelievable features; unbelievable quality; unbelievable cost effectiveness; unbelievable service

MATLAB PERFORMANCE TUNING – PART 2

WEBINAR OUTLINE

1. **Parallelization techniques**
   a. Vertical vs. horizontal scaling
   b. Parallelization mechanisms in Matlab
   c. Vectorization
   d. Cases when vectorization is not better
   e. Explicit parallelization using the Parallel toolbox
   f. Explicit parallelization using other means
   g. Amdahl's Law
   h. Using the GPU

2. **Graphics and GUI techniques**
   a. Initial graphs creation
   b. Updating graphs in real-time
   c. GUI preparation
   d. GUI responsiveness
   e. Feedback for long-duration tasks
   f. Dynamic updates/refresh
   g. Asynchronous updates/refresh
   h. Avoiding common pitfalls

3. **Memory-related techniques**
   a. Why memory affects performance
   b. Profiling memory usage in Matlab
   c. Matlab's memory storage
   d. Optimizing loop ordering
   e. Pre-allocation of data
   f. Minimizing run-time memory allocations
   g. In-place data manipulations
   h. Optimizing memory access
   i. Using global and persistent variables

Summary

You will learn:

- how to use a variety of parallelization techniques to reduce the run-time of your application at reasonable cost
- understand the tradeoffs involved in various parallelization techniques, to select the optimal mechanism
- understand the effects of memory usage on run-time performance and optimize your code accordingly

Target audience

Matlab users with some experience using Matlab, who wish to improve the quality and effectiveness of their programs; Matlab users who wish to distribute professional Matlab-based software where timely run-time performance is important.

Basic familiarity with Matlab environment, data types and coding is assumed.

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