Goal-Oriented Approximation Language (GOAL) Computing for Parallel GPU Architectures

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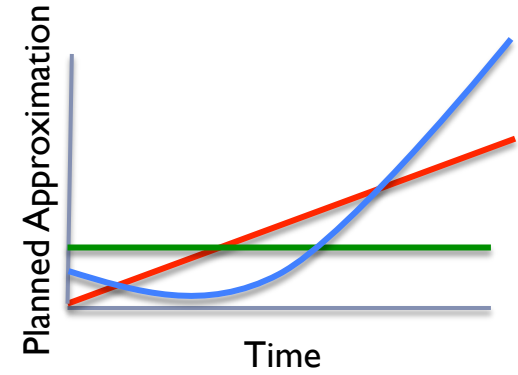
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GOAL: Programmer-Guided Framework for Runtime Approximation

▸ Technique to trade accuracy for performance and energy

  ▸ Overcome utilization issues in parallel architectures

▸ Decisions based on algorithm, model data, and machine

  ▸ Dynamically locate candidates for approximation (no training data)

  ▸ Direct approximation at runtime on ranking candidates

  ▸ Provide programmer with directives to control amount of approximation: AWT- Approximate workload threshold

Example:
Kmeans
clustering