

# First Workshop on Programming Massively Parallel Processors

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# This is an exciting time!

- All new computers are parallel.
- All major vendors are building many-cores.
- This is a fundamental shift of paradigm for software developers.
- There needs to be a stable programming interface with strong implementations.
  - This workshop will help define the interface.

# Application Domains

- Good when too much performance is not enough.
- Today: Graphics, gaming, network processing, video encoding, oil/gas exploration, financial analysis
- Tomorrow: computer vision, biomedical analysis, computational experimentation, ...
  - New capabilities and success today stimulates new applications tomorrow

# Why is programming massively parallel processors costly today?

- Separate structure from CPU
  - Data isolation and marshalling with pressure to optimize away overhead
- Lack of standardized programming interface
  - Each has its own software development models and tools
- Management of specialized execution and memory resources
- Multi-variable optimization required for achieving performance goals

# Charge to the Participants

- Identify coming application domains
- Reduce application development costs
- Progress towards a standardized programming interface
- Contribute to application development frameworks and tools
- Build a vibrant community