

Topics in Parallel and Distributed Computing:

Introducing Concurrency in Undergraduate Courses



MK
MOHAN KASIPANAM

Edited by
Sushil K. Prasad, Anshul Gupta, Arnold L. Rosenberg,
Alan Sussman, Charles C. Weems

Free
Download



Sushil K. Prasad · Anshul Gupta
Arnold Rosenberg · Alan Sussman
Charles Weems *Editors*

Topics in Parallel and Distributed Computing

Enhancing the Undergraduate Curriculum: Performance, Concurrency, and Programming on Modern Platforms

 Springer

Free
Download



PART 1 FOR INSTRUCTORS 5 Chapters

- ✓ Hands-on parallelism with no prerequisites and little time using Scratch
- ✓ Parallelism in Python for novices
- ✓ Modules for introducing threads
- ✓ Introducing parallel and distributed computing concepts in digital logic
- ✓ Networks and MPI for cluster computing

PART 2 FOR STUDENTS 4 Chapters

- ✓ Fork-join parallelism with a data-structures focus
- ✓ Shared-memory concurrency control with a data-structures focus
- ✓ Parallel computing in a Python based computer science course
- ✓ Parallel programming illustrated through Conway's game of life

PART 1 FOR INSTRUCTORS 5 Chapters

- ✓ What do we need to know about parallel algorithms and their efficient implementation?
- ✓ Models for teaching parallel performance concepts
- ✓ Scalability in parallel Processing
- ✓ Energy efficiency issues in computing systems
- ✓ Scheduling for fault-tolerance: an introduction

PART 2 FOR INSTRUCTORS 4 Chapters

- ✓ MapReduce - the scalable distributed data processing solution
- ✓ The realm of Graphics Processing Unit (GPU) computation
- ✓ Managing concurrency in mobile user interfaces with examples in Android
- ✓ Parallel programming for integrative GUI applications