

SISAL 93 Conference Program

Hyatt Islandia
San Diego, CA
Oct. 3-5, 1993

Sisal (Streams and Iterations in a Single-Assignment Language) is a general-purpose functional language that supports the development of determinate, high performance, machine-independent parallel software. It is available on numerous commercial computers, both sequential and parallel, under the Unix(TM) operating system. Sisal is used by practitioners and researchers at over one hundred industrial and academic sites worldwide, for a wide range of pursuits. Among these are physics and material simulations, biological simulations, mathematical algorithms and optimization, parallel algorithm performance and scaling, programming language design, advanced compilation and optimization techniques, and parallel computing on complex system architectures.

The research and user communities continue to grow, and interest arises in porting Sisal to new systems as they are developed. This meeting brings together Sisal users, implementers, and researchers, and those interested in functional and hybrid parallel programming languages.

Sunday, October 3, 1993

Registration: 3:00p.m. to 5:00p.m.
Reception: 7:00p.m. to 9:00p.m.

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Monday, October 4, 1993

Session 1: 8:00a.m. - 9:30a.m.

Welcome
John Feo, Lawrence Livermore National Laboratory

Keynote address
Paul Whiting, CSIRO

Morning Break: 10:00a.m. - 10:30a.m.

Session 2: 10:30a.m. - 12:00p.m.

- *Programmability and performance issues: the case of an iterative partial differential equation solver*; Chinho Kim, Jean-Luc Gaudiot, and Wlodek Proskurowski, University of Southern California
- *Parallelism of the Australian Region Weather Prediction Model using the Sisal implicit parallel programming language*; Greg Egan, Swinbourne Institute of Technology
- *A parallel implementation of search problems in Sisal*; Andrew Sohn, New Jersey Institute of Technology

Lunch: 12:00p.m. - 1:30p.m.

Session 3: 1:30p.m. - 3:00p.m.

- *Top-down thread generation for Sisal*; B. Shankar, Wim Böhm, and Walid Najjar, Colorado State University
- *Overlapping communications and computations on NUMA architectures*; Richard Wolski and John Feo, Lawrence Livermore National Laboratory
- *Compiling technique based on dataflow analysis for the functional programming language Valid*; Eiichi Takahashi, Takahito Inoue, Rin-ichiro Taniguchi, and Makoto Amamiya, Kyushu University

Afternoon break: 3:00p.m. - 3:30p.m.

Session 4: 3:30p.m. - 5:00p.m.

- *Copy elimination for true multi-dimensional arrays in Sisal 2.0*; Steven Fitzgerald, University of Massachusetts at Lowell
- *Increasing parallelism for an optimization that reduces copying in IF2 graphs*; Steven Fitzgerald, University of Massachusetts at Lowell
- *Caching in on Sisal: Cache performance of Sisal vs. FORTRAN*; Phil Nico and Arvin Park, University of California at Davis

Tuesday, October 5, 1993

Session 1: 8:00a.m. - 9:30a.m.

- *Even and quarter-even prime length symmetric FFT's and their Sisal implementations;* Jaime Sequel and Dorothy Bollman, University of Puerto Rico at Mayaguez
- *FFT algorithms on a shared-memory multiprocessor;* Anthony Cricenti and Greg Egan, Swinbourne Institute of Technology
- *Developing a high-performance FFT algorithm in Sisal for a vector super-computer;* John Feo, Lawrence Livermore National Laboratory David Cann, Convex Computer Corporation

Morning break: 10:00 a.m.- 10:30a.m.

Session 2: 10:30a.m. - 12:00p.m.

- *They're back: Streams in Sisal;* Chad Yoshikawa, Carnegie Mellon University, Patrick Miller and John Feo, Lawrence Livermore National Laboratory
- *Implementation issues for IF2 on a static data-flow architecture;* Linda Wilkens and Aaron Enright, University of Massachusetts at Lowell
- *Systematic control of parallelism in array-based dataflow computation;* Kanad Roy and Carl McCrosky, University of Saskatchewan

Lunch: 12:00p.m. - 1:30p.m.

Session 3 : 1:30p.m. - 3:00p.m.

- *A model for data driven vector execution;* William Miller, Walid Najjar, and Wim Böhm, Colorado State University
- *Sisal on distributed memory systems;* Sande Pande, Dharma Agrawal, and Jon Mauney, North Carolina State University
- *A virtual shared addressing system for distributed memory Sisal;* Matthew Haines and Wim Böhm, Colorado State University

