

PROCEEDINGS OF THE FIRST MERGED
International
Parallel Processing Symposium
&
Symposium on
Parallel and
Distributed Processing

March 30 – April 3, 1998

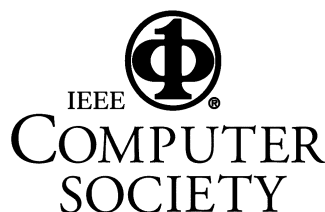
Orlando, Florida

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Message from the General Co-Chairs



IT IS OUR PLEASURE TO WELCOME YOU TO THE FIRST MERGED event of the International Parallel Processing Symposium and the Symposium on Parallel and Distributed Processing (IPPS/SPDP 1998). Recognizing the many benefits of a merged symposium in parallel processing and distributed computing, the organizing committees of IPPS and SPDP began discussing the merger of these two international meetings in 1996, culminating in this year's first merged event. By drawing upon a wider pool of volunteers and participants and limiting attendees' travel expense, our aim this first year is to offer attendees a strong and balanced technical program and to demonstrate the benefit of overall value for many years to come.

The response to our call for participation was outstanding due in good part to the efforts of the symposium technical committee composed of program chair Sartaj Sahni (University of Florida); program vice-chairs Oscar Ibarra (University of California at Santa Barbara), Paul Messina (California Institute of Technology), Lionel Ni (Michigan State University), and David Padua (University of Illinois at Urbana-Champaign); and an impressive program committee selected by the program chair and vice-chairs. The members of the program committee are to be praised for their exceptional work in processing the submitted papers, conducting the reviews, and selecting the papers for the technical program. We deeply appreciate their commitment to the success of this meeting.

In addition to the technical program of contributed papers, the meeting features several other noteworthy events, including: keynote addresses, a panel discussion, tutorials, 18 workshops, an industrial track, and commercial exhibits. In particular, we would like to thank our keynote speakers, David Culler (University of California at Berkeley), Jim Gray (Microsoft Research), and Greg Papadopoulos (Sun Microsystems), for agreeing to deliver the keynote addresses. We are grateful to John Antonio (Texas Tech University) who has, as usual, most ably surmounted the logistical challenges of organizing the industrial track as well as the commercial exhibits. Finally, we are deeply indebted to Dhableswar Panda (Ohio State University) for the excellent work he has done in organizing the tutorials program and to Vipin Kumar (University of Minnesota) for putting together an impressive panel to address issues related to data intensive and scientific computing.

Our special thanks go to José Rolim (University of Geneva) for organizing a most comprehensive set of workshops covering advanced topics of particular interest to the parallel processing and distributed computing community. These workshops provide a forum for exploring the selected topics, and they give participants the opportunity to address new issues and conduct constructive dialogue. We are most grateful to the organizers of these workshops.

This event benefited from the continuing services of its organizing officers. Sally Jelinek made her customary contributions through coordination of publication activities and meeting logistics. We would like to thank Afonso Ferreira, Alexey Kalinov, Nelson Maculan, Yu-Chee Tseng, Dan Watson, and Albert Zomaya for their assistance in publicizing the meeting. Bill Pitts, our finance chair, has done his usual good job of careful projections that facilitate event planning and keep us on target. Susamma Barua, our local arrangements chair, has once again organized the variables of space, speakers, and exhibitors to make sure that everything happens as planned the week of the symposium, and to be there to fix any variations.

The IEEE Computer Society Conference Department staff has been a generous and professional resource to our efforts. Our thanks go to Anne Marie Kelly, Mary-Kate Rada, Maggie Johnson, and Kerry Bedford. We also have a good friend at the IEEE Computer Society Press in the person of Bob Werner, who shepherded the publication of these proceedings.

Ramamohan Paturi of Parity Computing who published the electronic version of the proceedings on CD-ROM as well as on the Web is gratefully acknowledged. Our recognition of jobs well done would not be complete without special mention of the first-rate assistance of our student volunteers Prashanth Bhat, Manash Kumar Kirtania, and Karthik Kumar.

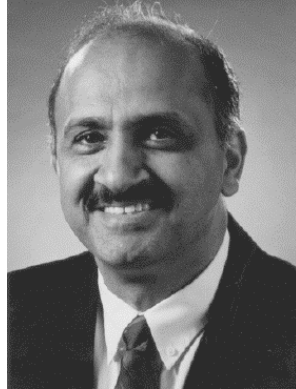
Last, but not least, we would like to thank George Westrom and members of the steering committee and the advisory committee who over the years have helped and contributed to both IPPS and SPDP. These individuals have been instrumental in successfully merging the two symposiums into what we expect to be the premier meeting in parallel processing and distributed computing. Cheers!

Viktor K. Prasanna
University of Southern California

Behrooz A. Shirazi
University of Texas at Arlington

February, 1998

Message from the Program Chair



WELCOME TO ORLANDO AND THE FIRST MERGED IPPS/SPDP symposium. The merger of two highly successful meetings has resulted in a very high quality symposium. The symposium features 3 keynote addresses, 21 contributed paper sessions, 1 panel, 18 workshops, 3 tutorials, an industrial track presentation, and commercial exhibits.

The 118 contributed papers to be presented at the conference were selected from the 324 submissions received from over 30 countries. The contributed papers were assigned to program committee members who in turn sent the papers to almost 700 experts for evaluation. These expert evaluations together with the recommendations of the program committee members were used in arriving at the final program.

This year's keynote speakers are: Professor David Culler, University of California, Berkeley, Dr. Jim Gray, Microsoft Research, and Dr. Greg Papadopoulos, Sun Microsystems. The titles of their keynote addresses are: *What's So Different About Cluster Architectures?*, *Parallel Data Access and Parallel Execution in a World of CyberBricks*, and, *The Future of Scalable Systems*.

The panel is entitled *Data Intensive vs. Scientific Computing: Will the Twain Meet for Parallel Processing?* The panelists are Professor Vipin Kumar (moderator), Dr. Tilak Agarwal, Dr. David Bailey, Dr. Jim Gray, Dr. Olaf Lubeck, Dr. Bob Lucas, Professor Tom Sterling, Dr. Rick Stevens, and Professor Hans Zima.

A conference of this magnitude cannot be organized without the tireless effort of many individuals. I'd like to thank all the conference volunteers for their enormous contribution towards the success of this conference. In particular, I wish to thank the conference co-chairs Professors Prasanna and Shirazi; the program vice-chairs Professors Oscar Ibarra, Paul Messina, Lionel Ni, and David Padua; the program committee; the expert referees; the authors of all contributed papers; the presenters of accepted papers; the keynote speakers; the panelists; the session chairs; the workshop organizers; and the tutorial lecturers. Special thanks to Ed Cheng, Xue Fang, Hajae Jung, and Chih-fang Wang for managing the receipt and evaluation of submitted papers.

Sartaj Sahni
University of Florida
February 1998

Message from the Steering Chair



WE SAW THE GREAT “AERATOR-ON-THE-LAKE” IN Geneva as well as the beauty of the Rhine and lakeside France, we experienced the cordial welcome of the European community, and we participated in the best attended IPPS to date. Many of us were apprehensive about going to Europe, and the Computer Society warned us that attendance would be down substantially. José Rolim, our “volunteer host” and IPPS’97 general co-chair, told us not to worry; he was confident the University of Geneva would prove an exceptional setting for our event.

For this accomplishment far beyond our expectations, much of the thanks goes to the many volunteers who worked on both sides of the Atlantic to ensure the success of IPPS’97. As steering chair, I was especially pleased at how everyone kicked their efforts into overdrive (fueled I suspect by the co-chairs Rolim and Prasanna, an inspired teaming). Most of all, I want to thank the European community and invite them to continue to be a major player in the future of IPPS/SPDP.

While the site provided its unique attraction, we know from comments that we should give equal or better billing to the quality of technical sessions — engineered by program chair Alan Gottlieb and his vice chairs — and to the impressive offering of 14 workshops organized by the co-chairs. We were all very proud of the symposium’s technical accomplishments, including the inclusion of PARCON, as well as our record attendance.

Such bonhomie extended to the delightful banquet cruise on Lac Léman. Once more, much praise to José and a special thanks to all of his European colleagues for making our event not only a resounding success but a memorable experience for all of us.

On a personal note, I welcomed the opportunity post-IPPS to spend more time in Switzerland and to travel in Germany and France. A tour of the Maginot Fortifications was a poignant reminder of my long-ago, first “tour” of Europe.

After two years away (Hawaii and Geneva), IPPS’98 returns to the Continental U.S. The “family friendly” site of Orlando (attractions like Disney World and Universal Studios) will be the occasion of the first merged symposium of IPPS & SPDP, setting the stage for production of the premier event in parallel and distributed processing. Once more I take this opportunity to praise the SPDP representatives who negotiated in such very good faith to make this merger possible. Under the most able leadership of Viktor Prasanna and Behrooz Shirazi, and with the support of our

capable program chair, Sartaj Sahni, and experienced workshops chair José Rolim, we are presenting an impressive program.

Next year, we will again plow new ground when Viktor will join me as steering co-chair. Our objective is to make sure that our organization has a mechanism for continuity and quality control, so that all of the hard work we have done (all of us!) to build this event is not squandered. The division of responsibility will be much as it is now and jointly, with the Steering Committee, we will shepherd issues related to program policy and future planning.

In 1999, we go to San Juan, Puerto Rico (a U.S. Territory), and are pleased to have José Rolim and Chip Weems as General Co-Chairs. We hope you will join us there and future venues (possibly an Asian location in 2000 — any volunteers?). Again, I am most honored to be associated with the many remarkable volunteers who have built this event. Thank you.

**George Westrom
Odetics, Inc. and FSEA**

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