Conference Record
of the
1980 LISP Conference

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Association for Computing Machinery
Special Interest Group on Programming Languages

Papers presented at
Stanford University
Stanford California
August 25-27, 1980

Sponsored by
Stanford University
Santa Clara University
The LISP Company, (T . (L . C))
The 1980 LISP Conference
Stanford, August 25-27, 1980

Invited Address: 9:00 to 9:30, August 25, 1980
John McCarthy, Stanford University

Session 1: 9:30 to 10:20, August 25, 1980
Chaired by Richard Fateman, U. C. Berkeley

Symbolic Computing with and without LISP
J. Campbell, University of Exeter and J. Fitch, University of Bath

Prose and CONS - Multics Emacs: A Commercial Text-processing System in LISP
B. Greenberg, Honeywell

Session 2: 10:45 to 12:00, August 25, 1980
Chaired by Daniel Friedman, Indiana University

Explicit Parallelism in LISP-like Languages
G. Prini, University of Pisa

Continuation-Based Multiprocessing
M. Wand, Indiana University

MULTI - A LISP Based Multiprocessing System
D. McKay and S. Shapiro, SUNY at Buffalo

Session 3: 1:30 to 3:10, August 25, 1980
Chaired by Carolyn Talcott, Stanford University

The Function-Class
T. Kurokawa, Japan

A Constructive Alternative to Axiomatic Data Type Definitions
R. Cartwright, Cornell University

A Semantic Comparison of LISP and SCHEME
S. Muchnick, UC Berkeley and U. Pleban, University of Kansas

MODLISP
J. Davenport and R. Jenks, IBM

Session 4: 3:45 to 5:00, August 25, 1980
Chaired by Alan Kay, Xerox PARC

Extending Object Oriented Programming in Smalltalk
I. Goldstein and D. Bobrow, Xerox PARC

A System of Communicating Residential Environments
E. Sandewall, H. Sorenson, and C. Stromberg, Linkoping

A Session with Tinker: Interleaving Program Testing with Program Writing
H. Lieberman and C. Hewitt, MIT

Session 5: 9:00 to 10:15, August 26, 1980
Chaired by David Wise, Indiana University

Computing with Text-Graphics Forms
F. Lakin, Xerox

Design of the APIARY for Actor Systems
C. Hewitt, MIT

Address/Memory Management for a Gigantic LISP Environment
J. White, MIT
Session 6: 10:45 to 12:00, August 26, 1980  
Chaired by Carl Hewitt, MIT

**SKIM - The S, K, I Reduction Machine**  
T. Clarke, P. Gladstone, C. MacLean and A. Norman, Trinity College

**HOPE: An Experimental Applicative Language**  
R. Burstall, D. MacQueen, and D. Sannella, University of Edinburgh

**Computing Cyclic List Structures**  
L. Morris, Syracuse University and J. Schwarz, Bell Labs

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Session 7: 1:30 to 3:10, August 26, 1980  
Chaired by Anthony Hearn, University of Utah

**An Efficient Environment Allocation Scheme in an Interpreter for a Lexically Scoped LISP**  
D. McDermott, Yale University

**The Dream of a Lifetime: A Lazy Variable Extent Mechanism**  
G. Steele Jr. and G. Sussman, MIT

**Strategies for Data Abstraction in LISP**  
B. Steele, MIT

**Special Forms in LISP**  
K. Pitman, MIT

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Session 8: 3:45 to 5:00, August 26, 1980  
Chaired by Bruce Anderson, Essex University

**Panel Discussion**

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Session 9: 8:35 to 10:15, August 27, 1980  
Chaired by Gianfranco Pnini, University of Pisa

**Multiprocessing via Intercommunicating LISP Systems**  
M. Model, Brandeis University

**Divide and CONCer: Data Structuring in Applicative Multiprocessing Systems**  
R. Keller, University of Utah

**Compilation Techniques for a Control-Flow Concurrent LISP System**  
J. Marti, University of Utah

**On Compiling Embedded Languages in LISP**  
P. Emanuelson and A. Haraldsson, Linkoping

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Session 10: 10:45 to 12:25, August 27, 1980  
Chaired by Eiichi Goto, University of Tokyo

**A LISP Compiler Producing Compact Code**  
W. Rowan, UC San Francisco

**Local Optimization in a Compiler for Stack-based LISP Machines**  
L. Masinter and L. P. Deutsch, Xerox PARC

**ByteLisp and its Alto Implementation**  
L. P. Deutsch, Xerox PARC

**Overview and Status of DoradoLISP**  
R. Burton, L. Masinter, D. Bobrow, W. Haugeland, R. Kaplan, and B. Sheil, Xerox PARC