Preface

This volume contains the proceedings of the 8th International Symposium on Functional and Logic Programming (FLOPS 2006), held in Fuji-Susono, Japan, April 24–26, 2006 at the Fuji Institute of Education and Training.

FLOPS is a forum for research on all issues concerning functional programming and logic programming. In particular it aims to stimulate the cross-fertilization as well as the integration of the two paradigms. The previous FLOPS meetings took place in Fuji-Susono (1995), Shonan (1996), Kyoto (1998), Tsukuba (1999), Tokyo (2001), Aizu (2002) and Nara (2004). The proceedings of FLOPS 1999, FLOPS 2001, FLOPS 2002 and FLOPS 2004 were published by Springer in the Lecture Notes in Computer Science series, as volumes 1722, 2441 and 2998, respectively.

In response to the call for papers, 51 papers were submitted. Each paper was reviewed by at least three Program Committee members with the help of expert external reviewers. The Program Committee meeting was conducted electronically for a period of 2 weeks in December 2005 and January 2006. After careful and thorough discussion, the Program Committee selected 17 papers (33%) for presentation at the conference. In addition to the 17 contributed papers, the symposium included talks by two invited speakers: Guy Steele (Sun Microsystems Laboratories) and Peter Van Roy (Université Catholique de Louvain).

On behalf of the Program Committee, we would like to thank the invited speakers who agreed to give talks and contribute papers, and all those who submitted papers to FLOPS 2006. As Program Chairs, we would like to sincerely thank all the members of the FLOPS 2006 Program Committee for their excellent job, and all the external reviewers for their invaluable contribution. The support of our sponsors is gratefully acknowledged. We are indebted to the Japan Society for Software Science and Technology (JSSST), the Association of Logic Programming (ALP), and the Asian Association for Foundation of Software (AAFS). Finally we would like to thank members of the Local Arrangements Committee, in particular Yoshihiko Kakutani, for their invaluable support throughout the preparation and organization of the symposium.

February 2006
Masami Hagiya
Philip Wadler
Program Co-chairs
FLOPS 2006
Symposium Organization

Program Chairs

Philip Wadler Edinburgh, UK
Masami Hagiya Tokyo, Japan

Program Committee

Vincent Danos París, France
Jacques Garrigue Nagoya, Japan
Manuel Hermenegildo New Mexico, USA & Madrid, Spain
Gabrielle Keller UNSW, Sydney, Australia
Michael Rusinowitch INRIA Lorraine, France
Konstantinos Sagonas Uppsala, Sweden
Ken Satoh NII, Tokyo, Japan
Peter Selinger Dalhousie, Canada
Eijiro Sumii Tohoku, Japan
Naoyuki Tamura Kobe, Japan
Peter Thiemann Freiburg, Germany
David Warren Stony Brook, USA

Local Arrangements Chair

Masami Hagiya Tokyo, Japan
Referees

Tatsuya Abe
Amal Ahmed
Kenichi Asai
Demis Ballis
Maria García de la Banda
Bruno Blanchet
Daniel Cabeza
Venanzio Capretta
Olga Caprotti
François Charoy
Ezra Cooper
Markus Degen
Rachid Echahed
Carl Christian Frederiksen
Naoki Fukuta
Martin Gasbichler
Samir Genaim
Michael Hanus
Ralf Hinze
Hiroshi Hosobe
Haruo Hosoya
Zhenjiang Hu
Atsushi Igarashi
Koji Kagawa
Yoshihiko Kakutani
Dominique Larchey
Pedro López
Ugo Dal Lago
Toshiyuki Maeda
Julio Mariño
Yasuhiro Minamide
Jean-Yves Moyen
Susana Muñoz
Keiko Nakata
Jorge Navas
Matthias Neubauer
Tobias Nipkow
Susumu Nishimura
Shin-ya Nishizaki
Martin Odersky
Yoshihiro Oyama
Mikael Pettersson
David Pichardie
Benjamin Pierce
Paola Quaglia
Christophe Ringeissen
Don Sannella
Ganesh Sittampalam
Yasuyuki Tahara
Yoshiaki Takata
Yasuyuki Tsukada
Satoshi Tojo
Akihiko Tozawa
Rafael del Vado
German Vidal
Dimitrios Vytiniotis
Hironori Washizaki
Stefan Wehr
Stephanie Weirich
Jeremy Yallop
Akihiro Yamamoto
Mitsuharu Yamamoto
Table of Contents

Invited Papers

Parallel Programming and Parallel Abstractions in Fortress
  Guy L. Steele .................................................. 1

Convergence in Language Design: A Case of Lightning Striking Four Times in the Same Place
  Peter Van Roy ................................................ 2

Refereed Papers

Data Types

“Scrap Your Boilerplate” Reloaded
  Ralf Hinze, Andres Loh, Bruno C.d.S. Oliveira ................... 13

Ruler: Programming Type Rules
  Atze Dijkstra, S. Doaitse Swierstra ......................... 30

A Framework for Extended Algebraic Data Types
  Martin Sulzmann, Jeremy Wazny, Peter J. Stuckey .......... 47

FP Extensions

Lock Free Data Structures Using STM in Haskell
  Anthony Discolo, Tim Harris, Simon Marlow, Simon Peyton Jones, Satnam Singh ................................. 65

XML Type Checking Using High-Level Tree Transducer
  Akihiko Tozawa ........................................... 81

Type Theory

A Computational Approach to Pocklington Certificates in Type Theory
  Benjamin Grégoire, Laurent Théry, Benjamin Werner ............... 97

Defining and Reasoning About Recursive Functions: A Practical Tool for the Coq Proof Assistant
  Gilles Barthe, Julien Forest, David Pichardie, Vlad Rusu 114
# Table of Contents

## LP Extensions

Soutei, a Logic-Based Trust-Management System  
Andrew Pimlott, Oleg Kiselyov ........................................... 130

A Syntactic Approach to Combining Functional Notation, Lazy Evaluation, and Higher-Order in LP Systems  
Amadeo Casas, Daniel Cabeza, Manuel V. Hermenegildo .............. 146

## Analysis

Resource Analysis by Sup-interpretation  
Jean-Yves Marion, Romain Péchoux ........................................ 163

Lazy Set-Sharing Analysis  
Xuan Li, Andy King, Lunjin Lu ............................................. 177

Size-Change Termination and Bound Analysis  
James Avery ................................................................. 192

## Contracts

Typed Contracts for Functional Programming  
Ralf Hinze, Johan Jeuring, Andres Löh ................................. 208

Contracts as Pairs of Projections  
Robert Bruce Findler, Matthias Blume ................................ 226

## Web and GUI

iData for the World Wide Web – Programming Interconnected Web Forms  
Rinus Plasmeijer, Peter Achten ............................................ 242

Crossing State Lines: Adapting Object-Oriented Frameworks to Functional Reactive Languages  
Daniel Ignatoff, Gregory H. Cooper, Shriram Krishnamurthi ........ 259

WASH Server Pages  
Peter Thiemann ............................................................. 277

## Author Index

................................................................. 295