Preface

This volume constitutes the proceedings of the second International Workshop on the Semantics, Applications, and Implementation of Program Generation (SAIG 2001) held on 6 September, 2001, in Florence, Italy. SAIG 2001 was held as an ACM SIGPLAN workshop co-located with the International Conference on Principles, Logics, and Implementations of High-level Programming Languages (PLI).

As the commercial production of software systems moves toward being a traditional industry, automation will necessarily play a more substantial role in this industry, just as it plays a key role in the production of traditional commodities. SAIG aims at promoting the development and the application of foundational techniques for supporting automatic program generation. A key goal of SAIG is to provide a unique forum for both theoreticians and practitioners to present their results and ideas to an audience from a diverse background.

This year we are fortunate to have three influential invited speakers: Krzysztof Czarnecki (DaimlerChrysler), Tim Sheard (OGI School of Science and Engineering), and Mitchell Wand (Northeastern University). The proceedings include abstracts of the invited talks, and an invited paper by Tim Sheard.

Seven technical papers and two position papers were presented at SAIG 2001. The technical papers cover a wide spectrum of topics, including:

- A rigorous, operationally-based treatment of the correctness of an important program transformation (*Johann*)
- A schema-based approach to generating solutions for maximum multi-marking problems (*Sasano, Hu, and Takeichi*)
- An elegant method for the generation of machine code without chains of jumps (*Damian and Danvy*)
- A uniform approach to the compilation of goal-directed programs using partial evaluation (*Danvy, Grobauer, and Rhiger*)
- The integration of partial evaluators into interpreters (*Asai*)
- A software design method for Haskell based on the Unified Modeling Language (UML) (*Wakeling*)
- A novel approach to dynamically adaptable software using staged languages (*Harrison and Sheard*)

The two position papers tackle novel application areas:

- Global computing through meta-programming (*Ferrari, Moggi, and Pugliese*)
- Optimizing functional programs using size inference (*Herrmann and Lengauer*)

We thank the participants for their excellent contributions.

July 2001 Walid Taha

Scope

SAIG welcomes contributions on or across any of the following facets of program generation:

- Software engineering methods and processes,
- Domain specific languages,
- Deductive program synthesis methods,
- Computer algebra and symbolic computation,
- High-performance/high-reliability systems,
- Specialized support in traditional programming languages,
- Novel accounts of traditional compilation and linking techniques, and
- Specialized semantics-based methods and approaches.

Review Process

A call for papers was announced on several mailing lists and newsgroups. The workshop accepted regular technical submissions and position papers, and featured an open panel discussion at its conclusion. All papers are reviewed for presentation, clarity, interest, and coverage of related work. In addition, regular papers must contain novel technical contributions. In contrast, position papers must provide a clear description of a problem, survey existing approaches, and give a clear description of and argument for the proposed approach.

Fifteen submissions were received this year, twelve of which were technical papers and three position papers. Of these submissions seven technical papers and two position papers were accepted. There was a drop in submissions from last year, where there were 20 submissions in total. The most likely explanation for this drop is the occurrence of two related multi-day events earlier this year, namely PADO II and Reflection. That SAIG received this number of papers is an indication of a sustained interest in this research area.

All accepted papers are of the same high quality as the papers accepted last year. Most papers received three reviews. The final decisions were made collectively by the Program Committee based on all available reviews. In cases where Program Committee discussions were of benefit to the authors, the discussions were summarized and included with the reviews. One submission received a conditional acceptance, and the authors addressed the concerns of the reviewers in time for publication.

To promote further development of the works presented at the workshop, a special issue of a journal on the theme of SAIG will be organized after the event.

Organization

This year, an Advisory Committee has been formed. This committee is responsible for the long term well-being of SAIG, and for selecting the Program Committee Chair each year. The Program Committee Chair is responsible for the selection of the Program Committee members. When there is need, Program Committee members are free to solicit the help of external reviewers.

Advisory Committee

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Eugenio Moggi, Genova
Greg Morrisett, Cornell
Tim Sheard, OGI
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External Reviewers

Reiner Hänle, Chalmers
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Perry Wagle, OGI
Ed Walter, Agere Systems

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