Call for Papers

XLDI 2012: 1st International Workshop on
Cross-model Language Design and Implementation

Affiliated with ICFP 2012, Copenhagen, Denmark, September 10-12, 2012
Sponsored by ACM SIGPLAN

http://workshops.inf.ed.ac.uk/xldi2012

Important Dates
Submission: May 15
Notification: July 1
Final papers due: August 1
Workshop: September 9

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There has recently been a burst of systems research advocating high-performance commodity “big data” or “massively parallel” computing models, often using simpler high-level languages or interfaces as front-ends. This work is often described as part of a shift towards a new “cloud computing” paradigm, but these buzzwords mask the major problems these techniques face: both big data and massively parallel systems currently employ systems-based methods and testing regimes that cannot offer guarantees of safety, security, correctness and evolvability. Language-based techniques, particularly formalization, verification, abstraction, and representation independence, offer the promise to reconcile the performance benefits of new execution models with the advantages of modern programming languages.

Cross-model programming is not a new problem: for example, smooth integration of relational database programming models into general-purpose programming languages has been a long-standing challenge, with some approaches now in mainstream use (such as Microsoft’s LINQ). But in the last few years there has been a dramatic increase in the number of domain-specific languages or libraries for interfacing with different computing models (data-parallelism, sensor networks, MapReduce-style fault-tolerant parallelism, distributed programming, Bayesian inference engines, declarative networking, or multi-tier Web programming), as well as techniques for language-integrated querying or processing data over other data models. Cross-model programs that execute in multiple (possibly heterogeneous) environments have much more challenging security, debugging, validation, and optimization problems.

Papers are solicited on topics including, but not limited to:

- Language designs for simplifying cross-model programming with database queries, data parallelism, networking, distributed programming, Web programming, or security primitives
- Formalizations or comparisons of existing languages, libraries or extensions for integrating multiple execution models
- Monads, comprehensions, arrows, applicative functors, and other abstractions for combining or embedding models
- Compilation and implementation techniques for cross-model programs
- Type systems (polymorphism, dependent types, GADTs, modal types, refinement types) to support safe cross-model programming
- Domain-specific embedded languages or libraries, syntax extensions, meta-programming facilities, or staged computation
- Language support for programming with XML, RDF, JSON, or other data interchange formats or Web standards
- Techniques for securing, debugging, performance profiling, optimization, or provenance tracking in cross-model programs

Submissions should consist of short papers of at most 3 pages in ACM SIGPLAN style (sigplanconf.cls). Submissions will be accepted electronically; the submission site will be advertised around one month before the submission deadline. Simultaneous submission with another workshop, conference or journal is not allowed. An author of each accepted paper is expected to present their paper at the workshop. Accepted papers will be available from the workshop website. Authors will retain copyright.