

Preface

This volume contains the papers presented at the 20th Symposium on Practical Aspects of Declarative Languages (PADL 2018), held during January 8–9, 2018, in Los Angeles, USA. The symposium was co-located with the 45th ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2018).

PADL is a forum for scientists and practitioners that gathers original works focusing on declarative languages relying on sound theoretical bases; in particular, it fosters novel applications and implementation techniques for all forms of declarative formalisms, including, but not limited to, logic, constraint, and functional languages.

Thanks to the work of several neighbor communities, solid theoretical results coupled with robust and efficient implementations made the application of declarative languages successful in many different real-world situations, such as artificial intelligence, the Semantic Web, database management, active networks, software engineering, decision support systems, and more.

Further developments in theory and implementation have recently opened up new application areas; at the same time, applications of declarative languages to novel problems raise numerous interesting research questions and issues. Examples include scalability, language extensions, and proper means for application deployment, and tools for development and interoperability with different formalisms and technologies. We observe that applications and attention to practical challenges drive the progress in the theory and implementation of efficient and reliable systems supporting declarative languages, and, at the same time, steer attention to timely challenges while benefiting from this progress as well.

Originally established as a workshop (PADL 1999 in San Antonio, Texas), the PADL series developed into a regular annual symposium; previous editions took place in San Antonio, Texas (1999), Boston, Massachusetts (2000), Las Vegas, Nevada (2001), Portland, Oregon (2002), New Orleans, Louisiana (2003), Dallas, Texas (2004), Long Beach, California (2005), Charleston, South Carolina (2006), Nice, France (2007), San Francisco, California (2008), Savannah, Georgia (2009), Madrid, Spain (2010), Austin, Texas (2012), Rome, Italy (2013), and San Diego, California (2014), Portland, Oregon (2015), St. Petersburg, Florida (2016), and Paris, France (2017).

This year, the Program Committee received 23 submissions. Each submission was reviewed by three Program Committee members, and 13 papers were accepted, based only on the merit of each submission and regardless of scheduling or space constraints.

The program also included two invited talks:

- Carlo Zaniolo, “Declarative Algorithms on Big Data: A Logic-Based Solution”
- Todd Millstein, “‘Safe’ Languages Require Sequential Consistency”

Two out of the 13 accepted papers were nominated for the Best Paper Award, via a secret ballot among the Program Committee members:

- Francesco Calimeri, Davide Fuscà, Simona Perri, Jessica Zangari, “Optimizing Answer Set Computation via Heuristic-Based Decomposition” (Most Practical Paper Award)
- Sandra Dylus, Jan Christiansen, Finn Teegen, “Probabilistic Functional Logic Programming” (Best Student Paper Award)

Springer sponsored 250 Euro for each of these awards. The authors were encouraged to submit the long versions of their work for the rapid publication track to the journal of *Theory and Practice of Logic Programming*.

We would like to express thanks to the Association of Logic Programming (ALP) and the Association for Computing Machinery (ACM) for their continuous support of the symposium, and Springer for the longstanding, successful cooperation with the PADL series. We are very grateful to the 31 members of the PADL 2018 Program Committee and external reviewers for their invaluable work and for the precious help in selecting the two best papers. The chairs of POPL 2018 were also of great help in steering the organizational details of the event.

We are happy to note that the conference was successfully managed with the help of EasyChair.

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