



Association for  
Computing Machinery

*Advancing Computing as a Science & Profession*

## NEWS RELEASE

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### **WORLDWIDE SOFTWARE COMMUNITY CONVENES IN ATHENS FOR SPLASH 2019**

#### **Major Conference Showcases All Aspects of Software Construction and Delivery**

**New York, NY, October 1, 2019** – The Association for Computing Machinery’s Special Interest Group on Programming Languages (SIGPLAN) announced that it will hold its annual [Conference on Systems, Programming, Languages and Application: Software for Humanity](#) (SPLASH) from October 20 – 25, 2019 in Athens, Greece. The event brings together educators, researchers and industry to showcase the latest advances in programming, languages, applications and software construction in general. In addition to its standard conference tracks, SPLASH 2019 will host three co-located conferences: GPCE, MPLR and SLE.

“In embracing all aspects of software construction and delivery, SPLASH is the most comprehensive conference of its kind in the world,” said 2019 General Chair Yannis Smaragdakis, University of Athens. “By attending SPLASH, practitioners, academics, and students gain a global perspective by connecting with world experts, while discovering new trends and innovations in leading-edge programming language research and practice.”

#### **2019 ACM SPLASH Highlights**

##### **Keynotes**

##### **“The Algorithm for Precision Medicine”**

*Matthew Might, University of Alabama at Birmingham*

Precision medicine promises to deliver ultra-personalized care by casting medicine as an optimization problem: identifying the best possible treatment with respect to all available data. A slew of recent advances in biology, starting with the ability to sequence the human genome, have caused an explosion in the amount of data one can collect on a single patient and a similar explosion in the complexity of reasoning about this data in order to solve this optimization problem. Computational support for the practicing physician is no longer an option.

This talk covers precision medicine from the ground up for computer scientists — through a personal journey from programming languages research into academic medicine. It will demonstrate progress to date, including the now-routine use of relational programming in miniKanren to identify personalized treatments for patients with some of the rarest and most challenging diseases in the world.

### **“Programming Support for Evolving Database Applications”**

*Isil Dillig, University of Texas at Austin*

Database applications typically undergo several schema changes during their life cycle due to performance and maintainability reasons. Such changes to the database schema not only require migrating the underlying data to a new schema, but also re-implementing large chunks of the application code that query and update the database. In this talk, Dillig will describe her recent work on programming languages support for evolving database applications. Specifically, she will first describe her work on verifying equivalence between database applications that operate over different schema, such as those that arise before and after schema refactoring. Next, she will describe how to use this verification procedure to solve the corresponding synthesis problem: That is, given a database application and a new schema, how can we automatically generate an equivalent program over this new schema?

### **“A Graphical Language for Flexible Inference in Robotics and Vision”**

*Frank Dellaert, Georgia Institute of Technology*

In robotics and computer vision, there are many inference problems that come down to fusing the information from many different sensors, or a small number of sensors deployed over time. Dellaert will review how these and other problems can be posed in terms of factor graphs, which provide a graphical language in which to develop and collaborate on such problems. The talk will emphasize the advantages and intuition that come with these graphical languages, leading to both offline and online sensor fusion algorithms. One of Dellaert’s current research directions is exploring the use of code generation to create high-performance, certifiable code to support autonomous systems in the real world.

### **“The Software Arts”**

*Warren Sack, University of California, Santa Cruz*

The subject of Warren Sack’s talk will be *The Software Arts*, a book recently published in the MIT Press “Software Studies” series. Sack offers an alternative history of software that traces its roots to the step-by-step descriptions of how things were made in the workshops of eighteenth-century artists and artisans. He illustrates how software was born of a coupling of the liberal arts and the mechanical arts and argues that the arts are at the heart of computing. The Software Arts is an invitation to artists and humanists to see how their ideas are already at the very center of software; and an invitation to computer scientists to envision how they are artists and humanists too.

### **Co-hosted Conferences**

#### **Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)**

As the premier research conference on applied programming languages, OOPSLA has broadened significantly beyond its original focus on object-oriented programming, and this year’s program contains papers on a diverse set of topics, addressing challenges across the software development lifecycle in both traditional and emerging domains.

### **Onward!**

Onward! is a cutting-edge multidisciplinary conference focused on everything to do with programming and software: including processes, methods, languages, communities, and applications. Onward! is more radical, more visionary, and more open than other conferences to ideas that are well-argued but not yet proven. The conference welcomes different ways of thinking about, approaching, and reporting on programming language and software engineering research.

### **18th International Conference on Generative Programming: Concepts & Experiences (GPCE 2019)**

The ACM SIGPLAN GPCE is a venue for researchers and practitioners interested in techniques that use program generation, domain-specific languages, and component deployment to increase programmer productivity, improve software quality, and shorten the time-to-market of software products. In addition to exploring cutting-edge techniques of generative software, the goal is to foster further cross-fertilization between the software engineering and the programming languages research communities.

### **16<sup>th</sup> International Conference on Managed Programming Languages and Runtimes (MPLR 2019)**

MPLR'19 (formerly ManLang) is a leading forum for presenting and discussing novel results in all aspects of managed programming languages and runtime systems, which serve as building blocks for some of the most important computing systems around, ranging from small-scale (embedded and real-time systems) to large-scale (cloud-computing and big-data platforms) and anything in between (mobile, IoT, and wearable applications).

### **International Conference on Software Language Engineering (SLE)**

Software language engineering (SLE) is the discipline of engineering languages and their tools required for the creation of software. The ACM SIGPLAN SLE is devoted to the principles of software languages: their design, their implementation, and their evolution. SLE 2019, will bring together researchers from different areas united by their common interest in the creation, capture, and tooling of software languages.

### **Additional Highlights**

#### **SPLASH Rebase Track**

Rebase is a collection of highly curated talks and panels, that brings together professionals in industry and academia to share observations and approaches to current and emerging problems. Topics of interest include, but are not limited to: scaling languages and systems, their development and operational infrastructures; languages and tools for data analytics, visualization, machine learning and artificial intelligence; and the impact of software in our society—including issues such as sustainability, health and public policy.

#### **Rebase keynote:**

#### **“Climate Change and Software 2.0”**

*Alan Edelman, Massachusetts Institute of Technology*

In this talk, Edelman will show how abstractions in the high-level programming language Julia, especially differentiable programming, are making a difference at so many levels of software toolchains.

#### **About SIGPLAN**

[SIGPLAN](#) is a Special Interest Group of ACM that focuses on Programming Languages. In particular, SIGPLAN explores the design, implementation, theory, and efficient use of programming languages and associated tools. Its members are programming language users, developers, implementers, theoreticians, researchers and educators.

#### **About ACM**

[ACM, the Association for Computing Machinery](#), is the world's largest educational and scientific computing society, uniting computing educators, researchers and professionals to inspire dialogue, share resources and address the field's challenges. ACM strengthens the computing profession's collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for lifelong learning, career development, and professional networking.