



DIMACS Challenge 13: Network Flows 2.0

Call for Participation

Updated 3/3/2026 with the final workshop dates

Motivation

The [First DIMACS Challenge](#), devoted to network flows, took place in 1990-1991. The Challenge was a big success and started the tradition of [DIMACS Challenges](#). The First Challenge greatly reduced the gap between theory and practice and raised standards for experimental work in the area. During the decades since the Challenge, network flow algorithms evolved, and new applications of network flows emerged. Many original benchmark instances are too easy for the improved implementations. Theoretical progress has been especially impressive, leading to near-linear algorithms for the minimum-cost flow problem and its special cases. Once again, experimental work is falling behind. The need for updated benchmarks and new algorithm implementations motivates the Network Flows 2.0 Challenge.

Goals

The goals for the challenge are:

- Update benchmarks for network flow problems to account for improved algorithm performance and to include instances from real-life applications.
- Motivate implementations and experimental evaluation of new algorithms.
- Compare old and new algorithm implementations on improved benchmarks.

Important Dates

Instance submission for core benchmarks:	April 15, 2026
Workshop paper submission (tentative):	September 15, 2026
Acceptance notification:	October 15, 2026
Final paper due:	December 15, 2026
Challenge workshop:	January 28–29, 2027

Scope

The Challenge will focus on the minimum-cost flow problem variants and special cases. This includes

- The minimum-cost flow problem
- The transportation problem
- The assignment problem
- The maximum-flow problem
- The bipartite matching problem
- The global minimum cut problem

Organizing Committee

- *Tamra Carpenter*, DIMACS
- *Giuseppe F. Italiano*, Luiss University
- *Loukas Georgiadis*, University of Ioannina
- *Andrew V. Goldberg*, Lehigh University
- *Daniel A. Spielman*, Yale University
- *Clifford Stein*, Columbia University
- *David P. Williamson*, Cornell University

Organization

The Challenge will have two tracks.

Benchmark track: The first track of the Challenge will produce benchmark instances and instance generators. We will provide links to existing benchmarks and encourage the submission of new ones, both real-life and synthetic. Submitted instances will be visible to participants immediately. Instances submitted by April 15, 2026, will be considered for the core benchmark set. The organizers will compile a set of core benchmarks. In addition, we may accept some papers on “interesting” benchmarks and generators, which give new insight into algorithm performance, for presentation in the workshop.

Implementation track: The second track of the challenge will be devoted to new flow algorithm implementations. This track will start at the same time as the first track. The participants can use existing test instances, instances submitted by the benchmark track participants, or produce their own instances (which they can also contribute).

Core benchmarks: All participants of the implementation track will be required to use the core benchmarks for the problem they are working on. Exceptions will be made only if special aspects of an implementation make it unreasonable (e.g., an implementation is aimed at a specific application). The participants are encouraged to use other benchmarks that they find useful. This will also help to identify benchmarks for future research, which will be one of the outcomes of the Challenge.

Hard max-flow instance competition: Will be announced in March 2026.

Challenge Workshop

The deadline for submitting papers to the Challenge workshop is September 15, 2026. We expect to make acceptance decisions by October 15, 2026. The final versions of the accepted papers will be due on December 15, 2026. This will give the authors time to address reviewer feedback.

The Challenge Workshop will take place at the end of January at [Lehigh University](#) campus in Bethlehem, PA, USA on January 28-29, 2027. This is just after the [2027 SODA and ALENEX](#) conferences. These conferences will be in Philadelphia, PA, about 70 miles from Bethlehem.

We will not publish official workshop proceedings, but we will place the papers selected for presentation at the Challenge website. We will invite selected papers from the workshop to [ACM Transactions on Algorithms](#), a high-quality journal that accepts experimental contributions.

Relationship to ALENEX Some Challenge participants may want to submit their work to ALENEX 2027. To avoid simultaneous submissions, we will make the workshop submission deadline a couple of days after the ALENEX notification deadline so that authors of the rejected ALENEX papers can submit to the workshop. Authors of the papers accepted to ALENEX can also submit to the workshop and inform us of the ALENEX acceptance. For ALENEX 2027 papers presented at the workshop, the workshop page will include a link to the ALENEX proceedings instead of the paper.

Presentation in person: We expect at least one author of each accepted paper to attend the workshop and present the work in person. However, we are unable to provide visa support, so we will consider requests for remote participation and will grant such requests on a case-by-case basis.

Challenge Website

The [Challenge website](#) will have up-to-date information about the Challenge, including the contact information, as well as links to reference implementations, existing problem instances, and the instances submitted by the participants.