CPCI Activity Report 2020–2021

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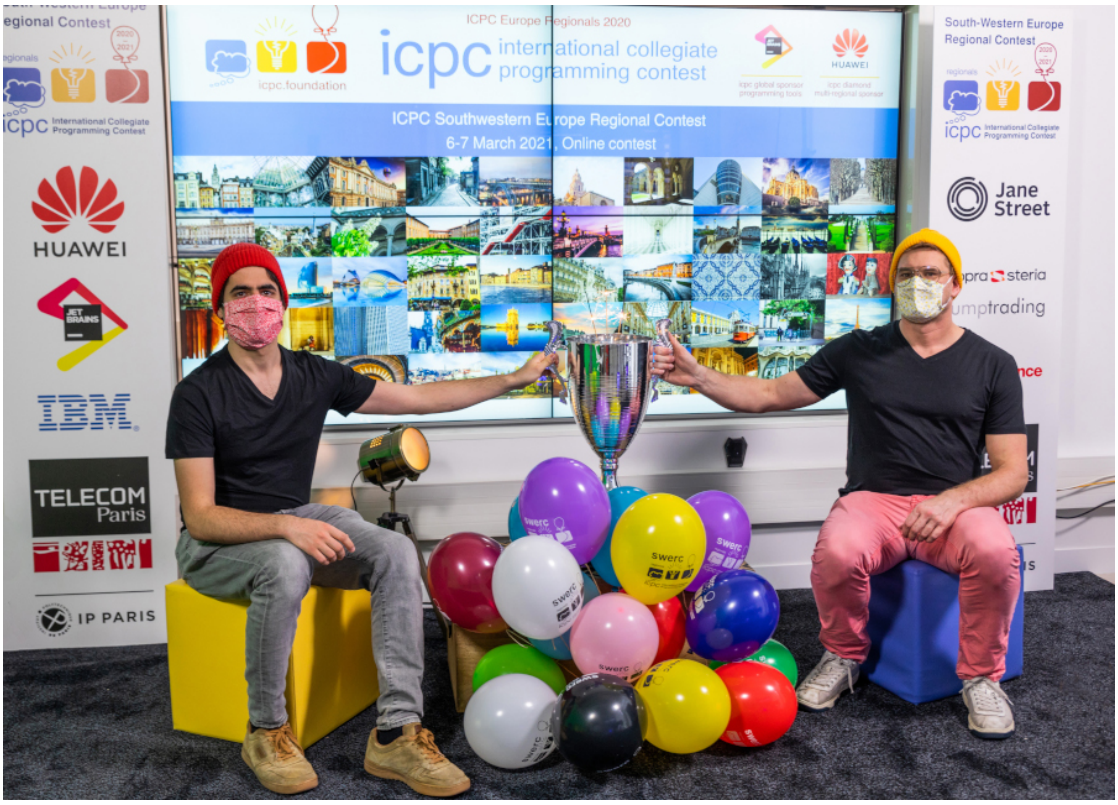


This report summarizes the activities of the CPCI association over the year 2020–2021. The CPCI association is a French non-profit (RNA identifier W751238568), whose mission statement is to promote competitive programming. The focus of CPCI's activities in 2020–2021 was to organize the SWERC'20–21 programming contest. The end of this activity report details in particular how the funding from DIM RFSI was used for these goals.

The contest. SWERC is a 5-hour on-site programming contest for teams of three students, focused on algorithmic problem solving and practical coding. It is open to teams from France, Israel, Italy, Portugal, Spain and Switzerland. SWERC serves as

the regional selection phase for the International Collegiate Programming Contest[1]: the winning teams of SWERC are qualified to advance to the ICPC World Finals and compete against teams from all over the world.

In 2020, the COVID-19 pandemic forced us to adopt an exceptional format for the SWERC contest. We initially planned for an on-site contest distributed among 10 host sites (at least one per member country), to host the event with a limited need for international travel and avoid large gatherings, and pushed back the event to March 2021. However, the sanitary situation did not make this plan possible, and we had to transition the event to a fully on-line format.

The event was still organized by Institut polytechnique de Paris[2] and Télécom Paris[3], who provided the facilities in which the live streaming took place. The contest was managed by the CPCI association. SWERC is a regional ICPC contest but is organized rather independently, although we again received financial support from the ICPC Foundation. The structure, rules, and regulations of SWERC also follow the ICPC regulations. Télécom Paris contributed financially to the contest but also contributed in kind, by providing the location and computer rooms, and by offering us the help of its staff (IT, logistics, communication, security, mail, electricity, etc.).

Participants. The number of teams of three students who registered to the contest was a record high of 109. Of these 109 teams, 107 completed at least one problem and were ranked.

These 109 teams came from 52 universities (up from 51 last year). We have published[4] a complete list of the teams, including a map, and including the name and contact information of team members and coaches who wished to share this information. We also posted online the past results of these institutions at previous SWERC contests[5].

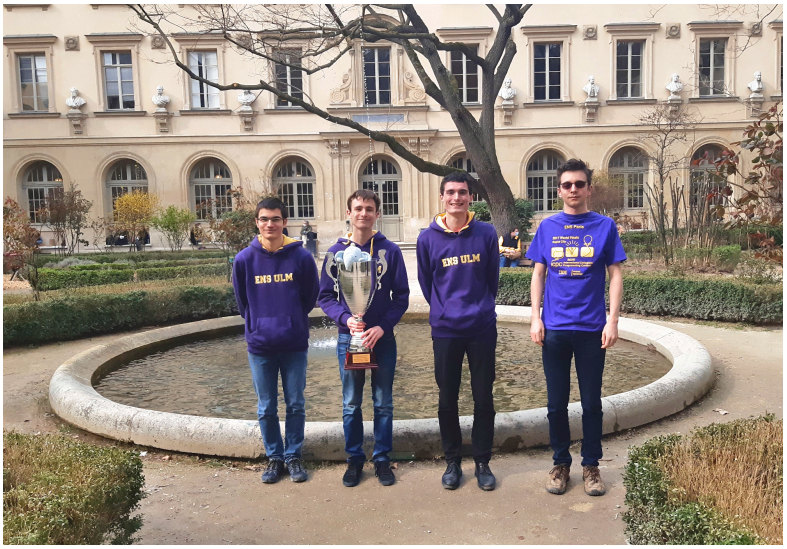
In terms of organizers, the team featured a contest director, a contest deputy director, a chief judge, a deputy chief judge, and a chief technical officer. In addition, we had the help of 11 judges (who also acted as problem setters).

Activities. The distributed setup meant that the activities of organizers were very different this year. The core contest activity, namely, that of proposing problems and an online judging system for the competition, was unchanged; the main difference was that the judging system was now available online (but only to registered participants). However, contestants participated from their own computers: there was no mandatory setup or contest environment, and we were not able to monitor or restrict Internet usage or communication between participants, or limit each team to a single computer. However, we chose to trust that participants would play fair, in the line of many programming contests which are customarily held online (e.g., Google Codejam). The observed results

[1] `https://icpc.baylor.edu/`
[2] `https://www.ip-paris.fr/`
[3] `https://www.telecom-paris.fr/`
[4] `https://swerc.eu/2020/teams/`
[5] `https://swerc.eu/2020/past-editions/`

were consistent with this assumption, and were in line with the performance of teams in previous SWERC editions, despite the very different setup.

In addition to this, however, we wanted to retain the convivial nature of the event despite it being online. So we arranged a streaming set at Télécom Paris, and held live broadcasts during the event, mimicking what would have been the structure of an on-site event. These featured instructional videos, live filming, riddles for contestants with participation of some winners by videoconferencing, props, a green screen, etc.[6] The videos of these streaming sessions are available online[7].



Winning team: ENS Ulm 1

Results and communication. The rankings of the contest are available online[8]. The contest was won by team "ENS Ulm 1" from École normale supérieure (Paris), with 12 problems solved. The second team was "lETHargy" from ETH Zürich, with 11 problems solved. The third place went to "Madagascar penguins" from Tel Aviv University, with 10 problems solved.

We gave out 2 gold medals, 4 silver medals, and 8 bronze medals; unfortunately the medals were virtual this year. The SWERC trophy was won back by École normale supérieure. We awarded programming books as prizes to the top teams.

The problem set for the SWERC 2020–2021 contest and for the practice contest have been published online[9].

[6] Some photos are available: `https://swerc.eu/2020/gallery/`.

[7] Recordings: `https://www.youtube.com/watch?v=qM2QqMFJDh4` and `https://www.youtube.com/watch?v=LSyYQ4WzTv4`.

[8] `https://swerc.eu/2020/theme/scoreboard/index.html`

[9] `https://swerc.eu/2020/problems/`

Assessment. We believe that CPCI was able to run successfully the 2020–2021 edition of SWERC despite the unprecedented move to an online format. The number of 107 ranked teams is a 9% increase relative to last year, a two-fold increase relative to 2015. The increase in the number of participating institutions is more modest (from 51 to 52 this year). We were not aware of any problem with the judging system or problems that would have jeopardized the fairness of the contest, though we stress again that the participants took part to the contest remotely and that it was not possible to monitor them. Overall, we believe that SWERC has adequately performed its core task of identifying the best teams to promote to the ICPC world finals.

We evaluated participant satisfaction by running a satisfaction survey after the event. It received 28 answers, less than previous years, highlighting that the online format still decreased participant engagement. Most answers were positive[10]. An important lesson from this poll is that participants prefer an on-site to an online contest. When asked for the main feature of an on-site gathering, participants reply that the important point is to have fun with other students from their university (39%), and the possibility to meet teams from different countries only comes second (25%).

The event was handed over to Politecnico di Milano for the organization of the 2021–2022 edition.

Diversity. In an effort to promote diversity in our pool of participants, we experimented with a new mechanism this year: each institution was allowed to register up to two teams, with a third team possible if at least two of the institution's nine contestants are female.

This made it possible to double the proportion of women among contestants. Specifically, the proportion of women among contestants was 7% in 2017, 4% in 2018, 6% in 2019–2020, and 12% in 2020–2021. This nevertheless highlights that there is still a long way to go before achieving parity in the participants of SWERC.

Sponsors. SWERC was organized by Institut polytechnique de Paris and hosted by Télécom Paris. It was supported by the ICPC Foundation; by our gold sponsor Jane Street; by our bronze sponsors Jump Trading and Sopra Steria; and by institutional sponsor Région Île-de-France via DIM RFSI. We also acknowledge the World Finals Sponsor Jetbrains and ICPC Global Sponsors Huawei and IBM . We are also grateful to all Télécom staff members who have supported this endeavor. Last, we are extremely grateful to the judges, volunteers, and everyone who helped make SWERC possible.

DIM RFSI Funding

The SWERC'20–21 programming contest was awarded a 5 kEUR grant by DIM RFSI. Unfortunately, because of the COVID-19 pandemic, it was later decided to switch the event to an online rather than on-site format. For this reason, our spendings were much

[10]Full results: `https://swerc.eu/2020/theme/poll/Survey-SWERC-2020.pdf`.

less than had been initially budgeted. The total cost of the event was only 4.4 kEUR[11], and the majority of this cost was covered by other sponsors.

We were nevertheless able to use part of the support of the DIM RFSI to finance a closure dinner. The dinner reunited 21 people: volunteers for the event, judges and problem-setters, and the organizers. The goal of the dinner was to have an on-site reunion of the competitive programming community in the Île-de-France region, following the end of 4 successful editions of the SWERC programming contest in Île-de-France.

For administrative reasons, the DIM RFSI grant was managed by Télécom Paris instead of by the CPCI non-profit. Of this grant, we used 629.50 EUR for the closing dinner.

[11] See detailed financial report: `https://swerc.eu/2020/theme/reports/cpci_financial_report_2021.pdf`