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Recognizing Student Research through Symposia and Competitions

(Article begins on next page)

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# Recognizing Students Research: Symposia and Competitions

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Many students dream of attending major computer science and engineering conferences, where they can present their work and interact with top researchers and practitioners in the field. For most of them, unfortunately, this dream risks remaining that. In fact, the major computer science and engineering conferences are quite selective in the choice of research papers, with a low paper acceptance rate to maintain high quality presentations and results. Moreover, dedicated funds for student attendance are limited, oftentimes. These factors prevent students to actively participate to conferences and, therefore, impede them to benefit from the expertise of more senior researchers and to get inspired by the novel work presented in those venues.

On the other hand, however, many conference organizers recognize the importance of having students attending conferences, as they will be the next generation researchers and practitioners, able to ensure novel energy and ideas, as well as an ongoing vitality for the field.

To overcome this problem, more and more conferences are organizing students-related activities, ranging from "traditional" doctoral colloquia to Student Research Symposia or Competitions.

Student Research Symposia and Competitions are particularly interesting, since they are open to a wider range of students than doctoral colloquia and they offer the opportunity to participate at a conference but also receive a prize or some other economic facilitations (e.g., a travel award or a discount on the conference registration fee).

## WHY AND HOW PARTICIPATE AT A STUDENT RESEARCH SYMPOSIUM?

As said before, Students Research Symposia and Competitions provide a favored vehicle for selected students to present their original research before a panel of senior members and attendees at major conferences. The benefits for students are many: they have the opportunity to experience a well-known research conference and meet various academic and industrial researchers, as well as other students. They can get feedback on their own research topic and have the chance to present their ideas to an audience of experts, thus sharpening their communication, organizational, and presentational skills in the preparation and during the event.

Student Research Competitions, in addition, emphasize most of these benefits by providing a stronger connection with sponsoring industries and an in-depth analysis and feedback of students' research work by the competition judging committee.

Several major computer science and engineering conferences provide students with events like a Student Research Symposium. Sometimes, these events are also called Student Research Forum or Student Research Challenge. They may have a general and wide topic – in line with the conference ones – or a more precise theme, chosen among the conference topics.

Typically, to participate in a Student Research Symposium, students should:

1. Submit a short paper (or an abstract) of their research work, before or by a specific deadline. Short papers are, then, reviewed by experts in the field and feedback are provided to the students.
2. Students submitting the highest-evaluated papers are invited to attend the conference and present their work. In some cases, the conference registration fee is discounted or waived.
3. At the conference, students present their work as a poster. Any conference attendee may come and discuss with each student about her work.

In case of a competition/challenge, the best works are awarded with a prize. Criteria for the selection of the best works vary from conference to conference, but they often include motivation of the research, adopted approach, results and significance of contributions, as well as quality of the oral and visual presentation.

## THE STUDENT RESEARCH SYMPOSIUM AT IEEE COMPSAC 2017

To better contextualize and exemplify the benefits for students of participating in such events, this section reports the experience of the Student Research Symposium held at the annual Computers, Software, and Applications (COMPSAC) conference in 2017. COMPSAC is the IEEE Computer Society's signature conference, with a long history as a selective venue.

For IEEE COMPSAC 2017, held from 4th to 8th July 2017 at Politecnico di Torino, in Italy, the conference organizers designed a system to have students attending the conference, thus benefitting from the multicultural and wide perspective offered by the conference itself.

The Student Research Symposium[1] (SRS) was the implementation of such a system, and it provided a forum for both undergraduate and graduate students to interact with other students, faculty mentors, and industry researchers present at the conference. It sought to bring together students working in all the fields related to computer software and applications. In particular, the SRS welcomed students who have already settled on a specific research topic and have produced some results, yet limited and preliminary, but who still have enough time remaining before their final (under)graduate thesis defense to benefit from conference discussions.

To participate in the symposium, interested students submitted a 4-pages paper. Although each SRS papers was reviewed by experts, the purpose of SRS reviews was to select promising research attempts so that students can receive valuable comments from more established members of the research community. To further allow students to receive valuable and in-depth suggestions, as well as to foster discussions, the SRS chairs also assigned senior researchers as mentors to the authors of the accepted papers. In this way, students received useful suggestions and focused guidance for the completion of their current work and potential initiation of their research careers.

At the conference, students prepared a poster based on their SRS papers to specifically present and discuss their research goals, methodology, and preliminary results (Figure 1).

Figure 1: Some students discussing their work at the IEEE COMPSAC 2017 Student Research Symposium

At the end, 6 students were selected to join the SRS at COMPSAC 2017. The research topics were quite diverse: 4 out 6 were about networking topics (epidemic DTN routing, the robustness of multi-layer networks, and content-centric networking). Other 2 papers were about security (integrated password-less authentication) and software engineering (development process in GitHub). This diversity was appreciated by both students and mentors since they could better understand different point of views and unfold possible collaboration opportunities. Some of the involved students also empathized that the SRS gave them a great opportunity to practice their communication skills, to defend their own research outcomes, and to meet and speak with other students in an international setting.

To further support the participation to the conference, SRS authors received a discounted registration fee. The SRS chairs hope that they will complete their current research and proceed with their research careers also thanks to the received guidance and the symposium experience. The wish is that they, as well as their colleagues involved in similar initiatives, may become a core member of the future IEEE COMPSAC research community.

## WHAT'S NEXT?

If you are a student, join a Student Research Symposium/Competition in a major conference of your interests! If you are organizing a conference, instead, consider to setup or join an existing event for students. In both cases, here are some pointers for you.

A well-known Student Research Competition for computer science is the ACM Student Research Competition (SRC)[2,3], sponsored by Microsoft. The SRC offers a unique forum for both undergraduate and graduate students to present their original research before a panel of judges and attendees at more than 20 conferences, including the International Conference of Software Engineering[4] (ICSE, https://www.icse2018.org) and the IEEE/ACM International Symposium on Code Generation and Optimization[5] (CGO, http://cgo.org).

Other conferences organize their own Student Research Symposium/Competition, as happened last year with IEEE COMPSAC 2017. The IEEE Computer Society Annual Symposium on

VLSI (ISVLSI) is another example. ISVLSI 2018, indeed, will host a Student Research Forum[6], like in past years, to allow recently graduated or final-phase BS/MS/PhD students to showcase their research work to a broad audience in the VLSI industrial and academic. The forum will be also helpful for early-career researchers to establish contacts for entering into the job market. On the other hand, representatives from industry and academia may get a glance of the cutting-edge research undertaken by the best and brightest students in the VLSI field.

Finally, the Design, Automation and Test in Europe (DATE) conference will host the Second IoT Student Challenge[7], sponsored by IEEE Council on Electronic Design Automation and Texas Instruments (TI), for practicing with the TI's SimpleLink Technology and competing in the realization of an innovative IoT cloud project that exploits the SimpleLink Technology.

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