

COMPSAC 2023: A Retrospective

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Welcome to my annual retrospective on COMPSAC, which, unfortunately, was virtual again. Despite that, or maybe because of it, the last few months before the conference were very busy for our volunteers. Complicating matters was the difficulty, early this year, trying to forecast the movement of the Coronavirus and its likely effect on COMPSAC's attendance in a "real" environment. In April, our Standing Committee decided to take a very conservative approach and go virtual again rather than opt for an in-person or even a hybrid version of the conference. With surges from evolving virus variants constantly reported worldwide, there was no reason to regret that decision.

Throughout the winter and early spring, we continued to confer with other IEEE hybrid conference organizers regarding their decision not to be hybrid. All were unanimous about their inability to forecast and budget for attendance for the in-person component of a hybrid conference. The budget implications of this uncertainty made contract negotiations with on-site vendors very difficult. Politecnico de Torino and Turin vendors were very understanding and flexible about the uncertainty. But eventually, we had to commit financially to physical venue resources for an in-person part of a hybrid conference. Because of reports from others about very, very low in-person attendance, we decided not to proceed with that part of COMPSAC 2022. We were saddened by our inability to reconnect in a "real" social setting but are determined that next year, assuming the world is acceptably "normal," to have "real" face time at a "real" venue. None of this digital, Zoom, avatar, digital twin, etc., stuff in 2023!

Pre Conference Planning. Every year, the COMPSAC organizing committee meets for 1½ days in March to finalize various conference matters. Traditionally, this meeting was the first and only opportunity for some volunteers to meet face-to-face. The volume of electronic communications in the months preceding the meeting is prodigious. For example, one week before the conference, my COMPSAC inbox folder contained about 5000 emails! But *actual*, in-person pre-conference planning committee sessions are essential to address misunderstandings arising from all the e-communications and to resolve last-minute logistical issues. It's also where planning for next year's conference begins. Unfortunately, these meetings were again virtualized, as they had been for the two preceding years.

Consequently, over the last three years, many volunteers who work together have never met their colleagues except electronically! And with the time zone differences, it's rare for everyone to be able to be online simultaneously. No one can convince me that this kind of metaverse is a preferred way of doing business.

Everyone knows that a significant benefit of in-person conferences is the "networking" that takes place during and between sessions. And almost all would agree that virtual meetings, even supplemented with our many social networking tools, cannot provide attendees with a practical, substitute networking experience. This is also true of our pre-conference planning sessions.

They just aren't as "good" as in-person meetings! We hope for a much better experience with in-person planning meetings in March 2023.

The 2022 Conference. COMPSAC volunteers have endeavored to make the 2022 conference even better than the previous two virtual renditions. We have learned much about what attendees and authors expect from a virtual conference. And as with most IEEE conferences, many of our attendees are volunteers themselves. COMPSAC 2022 was no different. This year, the volunteer team was outstanding – self-starters who were always available for instant meetings, planning sessions, and “putting out fires.” (The entire community of dedicated volunteers list can be found at <https://ieeecompsac.computer.org/2022/organizers/>.)

Notably, we could not have accomplished everything without the Standing Committee co-chairs and my friends, Sheikh Iqbal Ahamed (Marquette University, USA) and Mohammad Zulkernine (Queens University, in my own "home and native land," – Canada).

In-Person Conference Considerations. Sometimes time zone differences and travel considerations deleteriously affect in-person conference participation. If you think about it, except for local attendees, many in-person conference attendees are "time-zoned out" for the first day or two at "real" conferences. Who hasn't napped a little when a conference venue is 10 hours different than their home time zone? Or how often have we had to choose one of two parallel sessions when we wanted to go to both? Or how often have we wished we could have arrived a day earlier, attended first-day sessions, or had to depart early and miss sessions on the last day?

Last year such challenges were addressed when we posted the entire 5-day program with links to all papers and associated videos before the scheduled conference start date. We did that again this year. However, last year we also conducted live plenary sessions whose time zones were keyed to Madrid, Spain, where the in-person conference was supposed to be held. Unfortunately, attendance at those plenary sessions was not as good as we would have liked – probably because of international time zone disparities. So we recorded the plenaries and archived those recordings together with the complete 2021 COMPSAC proceedings in IEEE Xplore and the Computer Society Digital Library (CSDL).

2022 Plenary Sessions. This year again, our plenary speakers and panelists were selected for their outstanding qualifications and ability to present informative, state-of-the-art hardware, software, and systems topics relevant to our international industry and academic attendees. These sessions were organized by the Special Technical Community (STC) Coordinator, Professor Jean-Luc Gaudiot (University of California, Irvine). All the plenary sessions were conducted live (and recorded) in real-time, weeks before the conference. The Computer Society advertised all the sessions, which were open and gratis for anyone who signed up. The recordings were later included in the online conference program, which went live a few days before the scheduled conference. They become available only to conference registrants and then to IEEE digital library subscribers as part of the 2022 COMPSAC proceedings archived in Xplore, the CSDL, together with the other decades of COMPSAC proceedings.

This year's two keynote speakers focused on the essential metaverse-related topics - cybersecurity training and digital twins: i) Professor Paolo Prinetto, Director of the Cybersecurity National Lab at Politecnico di Torino (*The Big Game: The Italian Avenue of Attack to Cybersecurity Skill Shortage*); and ii) Roberto Saracco, former EIT Digital Italian Node leader and head of the Industrial Doctoral School of EIT Digital (*Digital Twins Evolution*).

The three recorded plenary panels (and panelists) were: i) from our longstanding sponsor, IEEE Future Directions, *Leveraging Intelligent and Immersive Technologies to Transform Our Uncertain World* (Nicholas Napp, Jeewika Ranaweera, Roberto Saracco, May Wang, Kathy Grise, and Louis Nisiotis); ii) *Technology Predictions from the Computer Society* (Tom Coughlin, Cecilia Metra, Dejan Milojicic, and Roberto Saracco); and iii) *Reliability of Autonomous Machines* (Shaoshan Liu, Cecilia Metra, Yuhao Zhu, Bo Yu, and Zishen Wang). (Details about these speakers and panelists and their sessions can be found at www.compsac.org.)

FYI - Video Recordings. An interesting development throughout the IEEE conference community (approximately 2,000 annual conferences) of pandemic-induced virtual meetings has been a proliferation of video recordings. Many conferences require as COMPSAC does that speakers, panelists, and authors provide a video of their speeches, presentations, etc., - a kind of replication of the talk they would do if the conference were in-person. We understand that most authors feel these videos are an extra burden. But we can't see how to conduct a conference without such presentations. And in any case, many people watch them during and after the conference.

Interest in these new video data types has raised many issues in IEEE. For example, who owns the videos, and what rights does IEEE have to use them, commercially or otherwise? Where should such large video files be stored? How should they be identified, retrieved, played, etc.? Do the videos have commercial value, singly or grouped by topic? While many of these matters are currently being debated within various IEEE conference committees, most, if not all, of these questions will be resolved over time.

Conference "Regular" Sessions. Launched almost 50 years ago, COMPSAC is the Computer Society's information and research sharing forum for the broadest spectrum of computing topics and trends – hardware, software, systems, and applications. As the computer industry matured and spun off different specialties and subspecialties, COMPSAC has evolved to accommodate these changes. Each year the General Chairs and Program Chairs-in-Chief develop a conference theme that reflects the most advanced computing topic of the day. The conference organizing committees also review specialty areas where colleagues create new technologies, practices, and products worldwide. Accordingly, we develop "symposia" (tracks) and (also invite) "workshop" topics along which authors and attendees can convene and converse. COMPSAC 2022 received more than 500 submissions organized for about 12 symposia and 50 workshops. At least three subject matter experts reviewed each paper; the overall acceptance rate was < 25%. (The 2022 theme, symposia, and workshops are all listed at www.compsac.org.)

Extra Goodies. COMPSAC organizes a few other activities/programs to benefit our community. These are the CJ/JC program and the Student OER Programming Contest.

i) The CJ (Conference/Journal) program was developed as a bonus for some authors whose papers are accepted/presented at this year's COMPSAC. Conference organizers select articles they believe are worthy of publication in an IEEE journal. The selections are forwarded to appropriate IEEE journal editors-in-chief (EIC), requesting that they consider the paper(s) for inclusion in their publication. Conference reviews are provided if the EIC wishes to receive them; alternatively, the EIC may decide to submit the submission to their own review community. Papers undergoing this process are not included in the conference proceedings unless the journal rejects them. At that time, they are retroactively included in the already-

published proceedings. If the journal accepts them, a note is inserted in the archived proceeding pointing to the journals as the locations of the published papers.

An alternative to CJ is the JC (Journal/Conference) program. Authors of papers published in a peer-reviewed journal (or accepted for publication) can present their plans for ongoing research based on the work described in that paper. Authors must submit their published article (or its DOI) and a two-page description of their planned extension to the content of that paper. The authors intend to seek comments and suggestions from conference attendees regarding their planned research extensions.

ii) COMPSAC 2022, in cooperation with the IEEE Education Society and organized by Henry Chan (Hong Kong Poly) and Edmundo Tovar (Politécnica de Madrid), conducted the Second Annual Student OER Contest for undergraduate college/university students. Submissions consisted of OERs (Open Educational Resources - Web-accessible entities that might be used for teaching/learning or research). Examples include materials for undergraduate class projects such as animations, case studies, video presentations, simulations, tutorials, workshops, training materials, etc. All submissions are made to the MERLOT (www.merlot.org) repository and reviewed by Computer Science and IT MERLOT faculty teaching experts. More than a dozen submissions were received from students worldwide; all were reviewed, and the winning submissions were announced during the scheduled conference week.

Finally. For the third year running, COMPSAC was conducted in an entirely virtual format. In 2020, virtual conferences were very challenging to organize. All of them were pioneering efforts. Over the last three years, hybrid conferences emerged as a theoretical alternative to virtual ones and a step towards normality. Unfortunately, planning and holding such conferences is complex and requires significant financial risk. Nothing compares to the real thing. We are planning COMPSAC 2023 as a “real” conference, June 26-30, at the University of Turin. Who knows if that will happen. Our fingers are crossed.