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SenSys '20

Proceedings of the 2020

The 18th ACM Conference on Embedded
Networked Sensor Systems

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Message from the ACM SenSys 2020 General Co-Chairs

Welcome to the first ever virtual SenSys. It is really unfortunate we don't get to meet physically in Yokohama, one of the first ports open to international exchanges in the Edo period. It would have been appropriate and nostalgic at the same time. Our sincere sympathy and prayers to all of those affected by the COVID-19 pandemic as well. It must have been difficult. Hope it will turn sweet for you, just as we see how the hardship brings out the best in the community. So behold. We have an unprecedented large program this year, consisting of:

1. 2 keynotes (one jointly with BuildSys),
2. 43 full papers,
3. 8 workshops (including the DATA workshop and PhD forum with BuildSys),
4. 50 posters and 29 demos,
5. 2 ask-me-anything sessions,
6. a business meeting with the steering committee.

Each keynote and full paper will be presented as a 45/15-min video over a webinar session and followed by a 15/5-min live Q&A with a Slack channel to collect questions from the audience. What might take you by surprise is this — the conference program will run twice throughout the week, once at 8am–6pm Eastern time and Japan time. This will make it easier to attend the sessions of your interest, without the need to battle the sleeping bug. We know the presentation effort is higher, but it will be fair being able to reach a broader audience across all time zones. Think MIMO. :) We would like to credit the idea to SIGCOMM 2020, one of our sister conferences, and thank the session chairs and the student volunteers for the work ahead.

The double-run schedule and the larger program are just part of our effort to grow the community. With gracious supports from our sponsors, the conference is free for all. This is against ACM's virtual conference preparation guideline but a possibility we'd really like to explore. We see in fact already some of the effects — the # of poster/demo submissions skyrocketed. While a larger poster/demo program is exciting, the session needs to be reinvented. The accepted posters/demos will break into 3 groups, each of which will be an interactive video session installed in the main program each day. This is probably the first time in the conference's history that the poster/demo authors get to check out other people's work without the guilt of leaving their own booths unattended. To allow students and new comers to know not just the research problems we are tackling, but also the people, the ask-me-anything sessions and the business meeting will feature senior members of the community and will be open to all. Come check out the issues the community is debating and see how the people are like after all the time seeing their names on the papers you need to cite.

It's unfortunate that we don't get to meet in Yokohama. It'd be fun showing you the Tokyo Bay where Godzilla had surfaced in the original movie (1954). To put you in context, the iconic Godzilla is not any of our stereotypical monsters. It symbolizes nuclear technology, which could be catastrophic when abused. One message subtly and sincerely delivered was — considerations and cautions were necessary handling power at this scale. Note that the movie was made way before the Chernobyl incident (1986). Therefore, despite the sub-par visual effect and the stuntman-in-rubber-suit acting, the movie received a 93% approval rate in Rotten Tomatoes. That's 2% higher than that of the legendary, CG-enhanced Jurassic Park (1993).

Not sure how much the Godzilla movie had played a role, we knew that considerations and cautions will be necessary when another monstrous being, this time tiny and contagious, surfaced. Given the uncertainty, we have proposed to run the conference in a hybrid format initially. Our appreciation to the steering committee for allowing us to explore the possibility. "Could this lead to a severe budget deficit?", as asked Nikki. We heard you. It's just that at the time user satisfaction was our primary consideration and we would really regret not trying. We are infinitely proud of the local arrangement team, the vice general chairs, and the finance chairs. They went a distance, researching how to interface attendees from physical and cyber space while soliciting sponsorships to realize such

an ambitious goal. The team had to reinvent the conference all over again after we exercised caution, as this new monster of our time wouldn't go away easily. Yin, Katsunari, Tadashi, Chenren, Akira, Takuya, Yasue, you guys are champion material, you know?!

Our consideration went also to the community. University campuses around the world were shut, some as early as February. For many of us, it was impossible to complete the experiments by the usual April deadline. Not sure what to expect, we postponed the deadline to the latest possible. This couldn't be done without the kind support of Marco, Pei, and the entire PC! Thanks are due to the workshop, poster/demo, PhD forum, publication, and registration chairs as well. There's little time to breath with all the rest of the deadlines being pushed back and very close to the conference dates. Kei, Nirjon, Susumu, Chulhong, Gowri, Sozo, Shijia, Shunsuke, Jinxiao, take a bow. You guys are true professionals. One caution we learned, a bit late but can be useful to future OCs, is — try not to push the deadlines this late unless it's necessary. And of course, SenSys 2020 wouldn't be possible without the work of the web, publicity, social media, student volunteer, special event, and broadcast chairs as well. Kazuya, Shunsuke, Yuuki, Naoya, Jeremy, Tatiana, Ella, Takuro, Tadashi, JeongGil, Takeshi, thank you all!

Last but not least, please join us to thank our sponsors. The free registration won't be possible without the gracious support from SONAS, Yahoo! Japan, KDDI Foundation, Kayamori Foundation of Informational Science Advancement. Special thanks are due to April Mosqus, Adrienne Griscti, Diana Brantuas, and John Otero of ACM for their effort and support of SenSys 2020.

Jin Nakazawa (*Keio University, Japan*)
Polly Huang (*National Taiwan University, Taiwan*)
ACM SenSys 2020 General Co-Chairs

Message from the ACM SenSys 2020 Program Co-Chairs

Welcome to the 18th ACM Conference on Embedded Networked Sensor Systems (SenSys 2020). SenSys is a highly selective, single-track forum for research on systems issues of sensors and sensor-enabled smart systems.

We are excited to announce this program and see the field moving forward despite the challenges that this year has brought to so many of us. As we learned how the pandemic affected the community we extended the deadline by about 3 months, well into the summer, in the hope that this gives the community time to care for themselves, their loved ones, and time to refocus on research. Accommodating this extension required some improvisation and led to a compressed reviewing timeline with, somewhat unexpectedly, a significantly larger number of submissions this year.

All papers went through a rigorous reviewing process by the technical program committee. This year, we received 214 submissions — of these 203 met submission requirements and were reviewed. Each of the reviewed papers received at least three reviews. All papers with at least one week-accept and no more than 1 reject recommendation entered the second phase, in which they received at least two more reviews. 137 papers entered phase 2.

Due to the COVID-19 epidemic, a planned physical TPC meet at Toronto Canada was replaced by two virtual meetings on September 10th and 11th. During these meetings, the committee discussed 88 papers. The TPC selected 44 papers to enter the shepherding process. Each accepted paper was shepherded by a TPC member to ensure that the reviewers' concerns were addressed and that the final version met the highest quality. Finally 43 papers were selected to appear in the program. Throughout the review process, program committee members with conflicts of interest did not have access to the reviews or discussions. In rare cases where both program chairs may be perceived to have a conflict of interest, a senior program committee member was appointed to organize the review process for these papers (and through the Hotcrp paper administrator mechanisms the reviewers and reviews were made inaccessible to the program chairs).

The accepted papers collectively cover many fundamental and important aspects of sensor networks. These include a broad set of application areas, tools, and hardware/software. This wide coverage of all aspects of sensor networks reflect the cross-domain nature of the area as well as SenSys.

As TPC co-chairs, we would like to thank the authors for submitting their best work to the conference. We understand the impact of COVID-19 on all in the community. We are also grateful to have dedicated TPC members who demonstrated great flexibility by accommodating the changing deadlines and the compressed review timeline. Furthermore, despite these challenges, the committee member worked tirelessly to identify novel and significant contributions as well as to provide constructive feedback to the authors of all papers. Finally, we would like to thank the entire organizing committee, and especially General Co-Chairs Polly Huang and Jin Nakazawa, Publicity Co-Chairs Tatiana Endrjukaite, Jeremy Gummeson, Naoya Isoyama, and Yuuki Nishiyama, Web and Social Media Chairs Shunsuke Aoki, Kazuya Murao and Ella Peltonen, Publication Chair Shunsuke Saruwatari for their assistance. This program could not have been organized without their dedication and help. We hope you enjoy the program!

Marco Gruteser (*Rutgers University, USA*)
Pei Zhang (*Carnegie Mellon University, USA*)
ACM SenSys 2020 Program Co-Chairs

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