

An Introduction to the Special Interest Group on Internet and Operation Technology (SIG-IOT) of Information Processing Society of Japan (Ver.2021)

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ABSTRACT

This paper introduces the Special Interest Group on the Internet and Operation Technology (SIG-IOT) of the Information Processing Society of Japan (IPSJ). IPSJ SIG-IOT is a similar association to ACM SIGUCCS in Japan. It retains about four hundred members who are mainly managers and operators of ICT infrastructures in universities and colleges, and staff members of companies. The activity of IPSJ SIG-IOT focuses on the technologies for the Internet in general and the techniques for the construction, operation, and administration of distributed computer/network systems. IPSJ SIG-IOT regularly organizes four workshops and one annual symposium and also issues a special section in the IPSJ journal every year. All papers submitted for the symposiums and journals are reviewed. IPSJ SIG-IOT participates in the Multimedia, Distributed, Cooperative, and Mobile Symposium (DICOMO) every year, as one of the organizing SIGs. It also hosts the Architecture, Design, Deployment & Management of Networks & Applications (ADMNET) every year. ADMNET is a workshop of COMPSAC which is the signature conference on computers, software, and applications and is sponsored by IEEE Computer Society. The fields of operational technologies may look modest and tend to be shunned, especially by young people. However, it must be an important part of the foundation of the ICT (Information and Communication Technology) infrastructures as it continues to grow. We are encouraging the research activities and preparing academic papers for young people and hope the activities of IPSJ SIG-IOT help to convey the importance of the field.

CCS CONCEPTS

General and reference → Biographies.

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SIGUCCS '22, March 28-April 8, 2022, Virtual Event, USA © 2022 Copyright held by the owner/author(s). ACM ISBN 978-1-4503-9193-1/22/03. https://doi.org/10.1145/3501292.3511565 Kazuhiro Mishima three@cc.tuat.ac.jp Tokyo University of Agriculture and Technology Tokyo, Japan

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KEYWORDS

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1 INTRODUCTION

The Information Processing Society of Japan (IPSJ)¹ is a Japanese academic organization (general incorporated association) established in 1960 for the purpose of contributing to the development of academia, culture, and industry by promoting science and technology related to information processing, with a focus on computers and communication. As of the end of March 2021, IPSJ has approximately 20,000 members (honorary members, regular members, student members, junior members, and supporting members), and in the fiscal year 2021 (April 2021 to March 2022), there were 41 Special Interest Groups (SIGs). One of these SIGs, the Internet and Operation Technology (SIG-IOT)², is an organization similar to the ACM SIGUCCS in Japan. The activities of the IPSJ SIG-IOT focus on technologies related to the Internet in general and technologies related to the construction, operation, and management of distributed computer network systems, as shown below.

- Internet architecture and communication methodologies
- Technology for building network systems with/without user authentication/authorization.
- Techniques for improving and evaluating network performance, methods for monitoring and managing systems, and techniques for constructing, operating, and managing largescale distributed systems.

¹IPSJ English Web Site https://www.ipsj.or.jp/english/index.html ²IPSJ SIG-IOT https://www.iot.ipsj.or.jp/

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In particular, concrete examples of practical systems are also reported, so that system administrators and those developing products to support them can obtain information that cannot be obtained elsewhere. The field of operation technology looks unassuming and is often avoided, especially by younger people. However, there is no doubt that it is an important part of the foundation of the evergrowing information and communication infrastructure. I would like to encourage young people to engage in research activities and submit academic papers, and I hope that the activities of IPSJ SIG-IOT will help to convey the importance of this field [1].

2 HISTORY

In 1996, a SIG called Distributed Systems and Internet Management Technologies (SIG-DSM) was established under IPSJ. The initial purpose of this SIG was to discuss technologies for developing and operating large-scale distributed systems in universities and companies. In 2001, a new SIG was established, the Quality Awareness Internet (SIG-QAI). The purpose of this SIG was to discuss various issues for improving the quality of communication services on the Internet and research themes for building a high-quality next-generation Internet. At the time, the quality of communication on the Internet was very poor, so various research proposals were actively discussed, focusing on how to pass audio and video streams smoothly. Later, as the bandwidth of the Internet improved, the research themes broadened to include the reliability and stability of various communications, and network system construction and operation technologies.

Although SIG-DSM and SIG-QAI had different origins as SIGs, their research fields overlapped, making it difficult to see the differences in the research fields of the two SIGs from the perspective of the participants. In addition, since both SIGs have the keyword "Internet" in their names, they tended to focus only on the Internet as their research field of interest. However, there is a wide range of research fields related to the Internet, including communication methods, construction methods, management methods, and their applications. For this reason, it was deemed important to share information between the two SIGs. In April 2008, the two SIGs were merged into SIG-IOT to clarify the target areas as technologies for the Internet in general and technologies for the construction, operation, and management of large-scale distributed systems including the Internet, and to enable the involvement of more people. The memorable first IOT workshop was held in Kagoshima City in May 2008, and was co-hosted by the Information and Communication Management (ICM) Technical Committee of the IEICE³.

SIG-IOT was merged with SIG-EVA in 2013. SIG-EVA was a research group that dealt with cross-cutting themes related to system evaluation. At that time, most of the research topics presented were related to the performance evaluation of distributed systems and networked systems. Therefore, SIG-IOT was merged with SIG-EVA to become the new SIG-IOT, and it started to accept participants from a wider range of fields related to distributed systems.

3 RESEARCH MEETINGS

The SIG-IOT consists of executive committees, steering committees, regular members, and student members. The Executive Committee consists of 8 members, including the Chair, Treasurer, and other secretaries. The Steering Committee recently consisted of 33 members. From this Steering Committee, persons in charge of local arrangements for organizing research meetings and Program Committee members are appointed. Figure 1 shows the number of active members of SIG-IOT.



Figure 1: Number of SIG-IOT members

The SIG-IOT holds four research meetings and one annual symposium and co-sponsors two symposia. In the SIG-IOT meetings, the Call for Paper Submission Due date is two months before the meeting, at which time only the title of the presentation, the name of the author(s), and a summary of the presentation can be submitted. One month prior to the meeting, the deadline for Paper submissions is set, and it is common for authors to write a two-column, A4-size manuscript of six to eight pages in accordance with the IPSJ research reporting style. The meetings are not peer-reviewed and anyone is welcome to attend. Oral presentations are given on the day of the meeting, and the duration is 25 minutes, including 5 minutes for discussion. There are also a certain number of presentations by under graduated, master, and doctoral degree students. At each meeting, there are prizes for excellent presentations and student presentations.

On the other hand, symposia are subject to peer review, and a program committee is formed to review the papers. Submissions that are not accepted are encouraged to submit to the non-refereed Work in Progress (WIP) session. One of the features of the symposium is that sponsors will have exhibits. The sponsors include various IT vendors as well as System Integrators and Cloud Service Providers. In addition to the awards given at research meetings, the symposium has awards for best papers, best presentations, and corporate awards given by vendors, making it the most spectacular event of SIG-IOT.

In Japan, the fiscal year starts in April and ends in March, and each meeting and symposium will be described in the order of the fiscal year.

3.1 May Research Meeting

The research meeting held in May every year will be held jointly with SIG-CSEC (Computer SECurity), and with the Technical Committee on Information and Communication Management (ICM) of The Institute of Electronics, Information and Communication Engineers (IEICE) which is an academic organization with a longer

³IEICE The Institute of Electronics,Information and Communication Engineers https://www.ieice.org/eng_r/index.html

history than IPSJ. Since it is a joint research meeting of three research groups, it has a large number of participants and is held over two days.

3.2 DICOMO Symposium

The multimedia, DIstribution, COoperation and MObile (DICOMO) Symposium⁴ is held at the end of June every year and is organized by 10 IPSJ SIGs. The number of participants is large, averaging 450 over the last five years. Three months before the symposium, a onepage submission consisting of a title and outline is submitted for review. One month later, authors will be notified of the acceptance or rejection of their submission, and the accepted submission must be submitted six weeks before the conference. There is no limit to the number of pages.

3.3 July Research Meeting

The July meeting is the only SIG-IOT research meeting (other than the symposium) that will be held independently. In 2021, a hybrid research meeting was held on a trial basis to explore ways to bring together local and online participants.

3.4 September Research Meeting

The September meeting is a joint meeting with Security Psychology and Trustness (SIG-SPT) that is a SIG of IPSJ that focuses on human security. Since this research meeting coincides with the Call for Paper period of the IOT Symposium, which will be described later, the number of participants is small even though it is set during the summer vacation period of Japanese universities.

3.5 IOT Symposium

As mentioned above, this is a peer-reviewed presentation meeting usually held in the first week of December. Although it is a standalone event, the number of participants is usually more than 100 because of the large number of participants from sponsors. Since the symposium is subject to a peer-review process, the deadline for manuscript submission is three months before the symposium. After that, peer review is conducted within a month, and the acceptance rate has been 70% for the last five years. After the results are announced, the call for WIP Session starts, but in some years when the number of accepted papers was too large, the WIP Session was not held.

From 2019 onwards, a poster session has been established and has been well received. The poster session is a two-page manuscript that is peer-reviewed and accepted for discussion with participants.

3.6 Symposium on Disaster Communication

This symposium is held at the end of December and is jointly organized by three research groups of IPSJ, SIG-IOT, SIG-SPT, which was mentioned in the September meeting, Special Interest Group on Information Systems (SIG-IS), and Disaster Prevention Research Institute, Kyoto University. This symposium is held at the end of December and is jointly organized by three research groups of IPSJ, SIG-IOT, SIG-SPT, which was mentioned in the September meeting, Special Interest Group on Information Systems (SIG-IS), and Disaster Prevention Research Institute, Kyoto University. This symposium was launched in the wake of the Great East Japan Earthquake in March 2011, and has been held annually since December 2011, with the central theme of communication in disasters.

3.7 March Research Meeting

The March meeting is a joint meeting of IEICE's Technical Committee of Internet Architecture (IA) and Technical Committee of Social Implications of Technology and Information Ethics (SITE). As with the May meeting, it is a joint meeting of the three committees, so the number of participants is large, and the meeting is held over two days.

4 SPECIAL ISSUE OF JOURNAL

"Publish or perish" is an aphorism describing the pressure to publish academic work in order to succeed in an academic career. The major difference between the computer centers of Japanese national universities and those in the U.S. is that the decision-makers who run the centers are academic researchers. As a result, they have to write papers and compete with faculty members in graduate schools while working at the center in order to get a better post. However, writing an academic paper on the operation, management, and administration of ICT infrastructure is difficult in terms of quantitative evaluation and comparison of existing research, and is not very highly regarded. For this reason, some researchers at the Computer Center have abandoned the work of the Center to concentrate on their research activities. Situations like this are not great for the researcher or Center.

To remedy this situation, we have been organizing a special issue of the Journal of IPSJ every year since the time of SIG-DSM. IPSJ members, including IPSJ SIG-IOT, review all papers submitted to the journal. To help authors write and improve their papers, reviewers of special issues are expected to play the role of mentors; the review process of the ACM SIGUCCS conference has been applied to the review process of this journal. We also welcome submissions from members of the SIGUCCS Community, as the number of papers submitted in English has been on the rise in recent years.

5 CONCLUSION

Compared to the long history of ACM SIGUCCS, the history of IPSJ SIG-IOT is still very short. In addition, the focus of SIGUCCS and SIG-IOT is not completely coincident with each other due to the unique problems of Japanese national universities, where researchers design and operate the Internet and computers. However, the researchers participating in SIG-IOT respect the long history of ACM SIGUCCS and its contributions. The SIG-IOT is not yet fully internationalized, and it is difficult for SIGUCCS participants to easily participate in the SIG-IOT or to refer to the content presented at the SIG-IOT. It is difficult for SIGUCCS participants to easily participate in SIG-IOT or refer to the contents presented at SIG-IOT. In the future, we would like to seek a mutually beneficial relationship between ACM SIGUCCS and IPSJ SIG-IOT by promoting internationalization.

⁴https://dicomo.org/

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