

Advances in Intelligent Systems and Computing

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Advances in Artificial Intelligence

Selected Papers from the Annual Conference
of Japanese Society of Artificial Intelligence
(JSAI 2019)

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Preface

The JSAI series of Annual Conference is the central event of the Japanese Society for Artificial Intelligence. Every year we collect papers and presentations and have earnest communications toward the progress of sciences, technologies, and philosophies relevant to AI. Traditionally, the JSAI Program Committee has mainly been responsible for organizing the conference program, selecting the invited speakers, and awarding the work. In JSAI2019, with the challenge of partially internationalizing general sessions, the content was organized on the supports by the newly established International Program Committee.

Summarizing the authors' first desired category of oral presentations in the general sessions, machine learning and AI applications increased further among all the submissions, but others decreased in general. One of the reasons is that many presenters who used machine learning technology as the method of each category wanted the machine learning category. The number of participants has increased more than the number of presentations, and there are 2905 participants (the most in history) for 748 presentations, showing the accelerating interest from the industry—the increase in submissions for AI applications is supporting this inference.

This year, for the first time, an international session was held with the same position as the general session. For the international session, five categories, (1) knowledge engineering, (2) machine learning, (3) agents, (4) robots and real worlds, and (5) human interface and education aid, have been chosen considering this as a challenging start of internationalization. Seven International Program Committee members who can cover these categories worked in the selection of papers, so that each paper had two or more reviewers over a peer review period of two months. In consideration of the evaluation by the evaluation committee and chairperson during the conference, we selected the papers to be published by Springer.

We also aimed to improve the quality of the paper. Both Japanese and English clearly indicated to CFP that the outline should include (1) purpose and (2) summary or conclusion of results. The contributors were carefully noted, and 26

of the 80 talks that were finally given were published as selected papers from Springer following the two stages below.

In the first stage, for all the papers presented in the international session (oral or interactive), at least two reviewers from related fields (from Japan or abroad) for each paper for which the program chairperson confirmed the abstract satisfied the conditions specified in the CFP. The reviewers selected by the International Program Committee members (the editors of this book) reviewed them. This peer review was evaluated according to the following criteria, scoring 0–5 for each criterion.

- (a) Originality (novelty of the paper)
- (b) Significance (impact on sciences and businesses)
- (c) Quality (soundness and clarity of the paper)

This first evaluation period was from mid-March to mid-May 2019. Next, there are 80 cases in total, and the award candidates should be 30–45%. Therefore, in each categorized field, first, the top 33% of candidates in the overall score according to the peer reviewers were selected.

In the second stage, the reviewers consisting of all members of the International Program Committee members reassessed the content and the paper points, including the period of the conference.

- (1) Contents: Evaluation of research importance and novelty
- (2) Paper points: Evaluation of technical quality and clarity of papers
- (3) Presentation points: Evaluation of oral presentations

As a result of consideration by the program chair and the head of the International Program Committee based on the second-stage evaluation, 19 long papers and 7 short papers have been chosen for publication in this book. Then, we finally edited this book including these survived papers. In this final step, we reorganized the selected papers into six parts (I) knowledge engineering, (II) agents, (III) education and culture, (IV) natural language processing, (V) machine learning and data mining, and (VI) cyber-physics, considering the balance of the number of papers. Approximately, (I) corresponds to the previously mentioned (1), (II) to (3), (III) to (5), (IV) to the intersection of all (1) through (5), (V) to (2), and (VI) to (4). This change and rearrangement were originally proposed by Yoshiki Kishi and Danilo E. Miura who assisted the program chair in the editing of this book, attending sessions in JSAI2019 and checking details of all the selected papers. Then we, the editors, found this idea realizes a harmony showing out the feature of JSAI where philosophies, i.e., toward a human-centric society with integrating natural and artificial intelligence.

We sincerely express millions of thanks to President Naohiko Uramoto, Vice-President Shusaku Tsumoto (General Chair of JSAI2019) of JSAI, Ex-president Seiji Yamada, Executive Committee Chair Takafumi Koshinaka, Deputy Program Chair Daisuke Katagami, Assistant Program Chair Teruaki Hayashi, Ex-Program Chair Takashi Onoda, Secretary-General Kazuo Sumida, and

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November 2019

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The Program Chair of JSAI2019

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