

## REPORT FROM EATCS JAPAN CHAPTER

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### **EATCS-JP/LA Workshop on TCS and Presentation Awards**

The 20th *EATCS-JP/LA Workshop on Theoretical Computer Science* was held online February 1st to 3rd, 2022. (The details can also be found, although this website is written in Japanese, at

<http://tcs.inf.kyushu-u.ac.jp/LA2021/winter.php>.)

Every year, we choose the best presenter and the best student presenter. This year, we celebrated the following presentation as the 20th LA/EATCS-Japan Presentation Award:

*“On an efficient solver for combinatorial reconfiguration problems using ZDDs”*, Takehiro Ito (Tohoku University), **Jun Kawahara** (Kyoto University), Takehide Soh (Kobe University), Akira Suzuki (Tohoku University), Junichi Teruyama (University of Hyogo), Takahisa Toda (The University of Electro-Communications)

We celebrated the following presentation as the 11th LA/EATCS-Japan Student Presentation Award:

*“Linear-Time Combinatorial Approximation Algorithms for MAX CUT in Sparse Graphs”*, **Eiichiro Sato** (The University of Tokyo)

The awards were recognized publicly on the last day, February 3rd, 2022.

### **Congratulations!**

This workshop is jointly organized by *LA symposium*, Japanese association of theoretical computer scientists. Its purpose is to give a place to discuss topics on all aspects of theoretical computer science. This workshop is an unrefereed meeting. All submissions are accepted for the presentation. There should be no problem of presenting these papers at refereed conferences and/or journals. This meeting is unofficial, familiar, and widely open for everyone who is interested in theoretical computer science. It is held twice a year (January/February and July/August). If you have a chance, I recommend that you attend it. Check the website <http://www.ecei.tohoku.ac.jp/alg/EATCS-J/> for further details. The list of the presentations is as below; you can see the activity of the Japanese society of theoretical computer science.

## Program of EATCS-JP/LA workshop on TCS (February 1st to 3rd, 2022)

In the following program, “\*” indicates non-student speakers, while “\*\*” indicates student speakers. The number [Sxx] means it is in student session, namely, it is shorter talk than regular one.

- [1] Approximate K-best Enumeration of Minimal Connected Edge Dominating Sets  
\*Kazuhiro Kurita (National Institute of Informatics), Kunihiro Wasa (Toyohashi University of Technology)
- [2] On an efficient solver for combinatorial reconfiguration problems using ZDDs  
Takehiro Ito (Tohoku University), \*Jun Kawahara (Kyoto University), Takehide Soh (Kobe University), Akira Suzuki (Tohoku University), Junichi Teruyama (University of Hyogo), Takahisa Toda (The University of Electro-Communications)
- [3] Partitioning a Weighted Tree into Subtrees Almost Equally with a Few Exceptions  
\*\*Masashi Ito, Hirotaka Ono, Yota Otachi (Nagoya University)
- [4] Discretization to prove the nonexistence of common unfolding between polyhedra  
\*\*Tonan Kamata, Ryuhei Uehara (Japan Advanced Institute of Science and Technology)
- [5] Overlapping Edge Unfoldings for Archimedean (Anti-)Prisms  
\*\*Takumi Shiota, Toshiki Saitoh (Kyushu Institute of Technology)
- [6] Counting and ZDD-based Enumeration of Locally Flat-Foldable Crease Patterns in the Square/Diagonal Grid  
\*\*Yudai Enomoto, Yuki Kawakami, Kazuhisa Seto, Takashi Horiyama (Hokkaido University), Jun Mitani (Tsukuba University)
- [7] Linear Time Algorithms for the Josephus Problem and Its Inverse  
\*\*Shota Ishizuka, Diptarama Hendrian, Ryo Yoshinaka, Ayumi Shinohara (Tohoku University)
- [8] Linear-Time Combinatorial Approximation Algorithms for MAX CUT in Sparse Graphs  
\*\*Eiichiro Sato (The University of Tokyo)
- [9] On Finding Nash Equilibria of Discrete Preference Games and Network Coordination Games  
\*\*Takashi ISHIZUKA, Naoyuki KAMIYAMA (Kyushu University)
- [10] Linear Threshold Functions on 2-dimensional Space  
\*\*Ryotaro Mitsuboshi, Kohei Hatano (Kyushu University / Riken AIP), Eiji Takimoto (Kyushu University)
- [11] Randomness Bounds for Private Simultaneous Messages and Conditional Disclosure of Secrets  
\*Akinori Kawachi (Mie University), Maki Yoshida (National Institute of Information and Communications Technology)
- [12] Online Construction of Parameterized Compact Directed Acyclic Word Graphs  
\*\*Shintaro Ichikawa, Diptarama Hendrian, Ryo Yoshinaka, Ayumi Shinohara (Tohoku University)
- [13] Grammar-based index with induced suffix sorting  
\*\*Tooru Akagi (Kyushu University), Dominik Koepl (Tokyo Medical and Dental University), Yuto Nakashima, Shunsuke Inenaga (Kyushu University), Hideo Bannai (Tokyo Medical and Dental University), Masayuki Takeda (Kyushu University)
- [14] LZEnd vs LZ77

- \*\*Takumi Ideue (Kyushu University), Takuya Mieno (Hokkaido University), Mitsuru Funakoshi, Yuto Nakashima, Shunsuke Inenaga, Masayuki Takeda (Kyushu University)*
- [15] Parallel algorithm for pattern matching under substring consistent equivalence relations  
*\*\*Davaajav Jargalsaikhan, Diptarama Hendrian, Ryo Yoshinaka, Ayumi Shinohara (Tohoku University)*
- [16] Pumping Lemmas for Languages Expressed by Computational Models with Registers  
*\*\*Rindo Nakanishi (Nagoya University), Yoshiaki Takata (Kochi University of Technology), Hiroyuki Seki (Nagoya University)*
- [17] Extended MSO Model Checking via Small Vertex Integrity  
*\*\*Tatsuya Gima, Yota Otachi (Nagoya University)*
- [18] On the Clique-Width of Unigraphs  
*\*Yu Nakahata (Nara Institute of Science and Technology)*
- [19] Minimal separator from the perspective of Galois connection  
*\*Koichi Yamazaki (Tokyo Denki University)*
- [20] RePair grammars are the smallest grammars for Fibonacci words  
*\*Takuya Mieno (Hokkaido University), Shunsuke Inenaga (Kyushu University), Takashi Horiyama (Hokkaido University)*
- [21] Sensitivity of string compression algorithms  
*Tooru Akagi, Mitsuru Funakoshi, \*Shunsuke Inenaga (Kyushu University)*
- [22] Exponential-time algorithms for Arc-Kayles  
*\*\*Kanae Yoshiwatari (Nagoya University), Hironori Kiya (Kyushu University), Tesshu Hanaka, Hirotaka Ono (Nagoya University)*
- [23] The optimal m-pebbling number of paths  
*\*\*Makoto Machida, Shuji Kijima (Kyushu University), Yutaro Yamaguchi (Osaka University)*
- [24] Approximation algorithm for the max path cover with length cost  
*Kenya Kobayashi (Kyushu Institute of Technology), Guohui Lin (University of Alberta), \*Eiji Miyano, Toshiki Saitoh (Kyushu Institute of Technology), Akira Suzuki (Tohoku University), Tadatoshi Utashima, Tsuyoshi Yagita (Kyushu Institute of Technology)*
- [25] Formalization of Approximation Guarantees of Bin Packing Algorithms in Mizar  
*\*Hiroshi Fujiwara (Shinshu University), Ryota Adachi (Intage Technosphere Inc.), Yuichiro Mae, Hiroaki Yamamoto (Shinshu University)*
- [S1] Optimality of Quantum Attacks on Even-Mansour Cipher  
*\*\*Yuki Naito, Akinori Kawachi (Mie University)*
- [S2] Online Removable Knapsack Problems with the LIFO and FIFO rules  
*\*\*Ayana Sasada, Hiroshi Fujiwara, Hiroaki Yamamoto (Shinshu University)*
- [S3] On Reconfiguration of Bin Packings  
*\*\*Kai Hirabayashi, Hiroshi Fujiwara, Hiroaki Yamamoto (Shinshu University)*
- [S4] Dynamic Programming for the Huffman Tree Problem with Upper-Bounded Liner Functions  
*\*\*Kanon Kobayashi, Hiroshi Fujiwara, Hiroaki Yamamoto (Shinshu University)*
- [S5] An Approximation Algorithm for Spanning Tree Design and Scheduling Problem  
*\*\*Yusuke Saito, Akiyoshi Shioura (Tokyo Institute of Technology)*

- [S6] Online prediction over generalized permutations via Blackwell games  
 \*\**Rei Otsuka, Kenta Konagayoshi (Kyushu University), Kohei Hatano (Kyushu University / RIKEN AIP), Eiji Takimoto (Kyushu University)*
- [S7] Price of Stability of the Fractional Hedonic Game on Split Graphs  
 \*\**Airi Ikeyama, Tesshu Hanaka, Hirotaka Ono (Nagoya University)*
- [S8] Shortest Matching of String Sequences  
 \*\**Kyohei Miyabe, Ren Mimura, Kengo Miyamoto, Akio Fujiyoshi (Ibaraki University)*
- [S9] Polynomial-time equivalence among longest common subsequence variants  
 \*\**Tadadoshi Utashima (Kyushu Institute of Technology), Yuichi Asahiro (Kyushu Sangyo University), Jesper Janssen (Kyoto University), Guohui Lin (University of Alberta), Eiji Miyano (Kyushu Institute of Technology), Hirotaka Ono (Nagoya University)*
- [S10] Forward Scattered Agents Bike Sharing Problem  
 \*\**Valeri Haralanov, Toshinori Yamada (Saitama University)*
- [S11] Characterization of Bipartite Graphs Whose Eternal Vertex Cover Number and Vertex Cover Number Coincide  
 \*\**Taisei Kamata, Toshinori Yamada (Saitama University)*
- [S12] Community Detection via Metastability of Distributed Consensus  
 \*\**Masao Fueki, Nobutaka Shimizu (Tokyo Institute of Technology)*
- [S13] Algorithmic Self-Assembly of Squares in Oritatami  
*Szilard Zsolt Fazekas (Akita University), Hwee Kim (Incheon National University), \*\*Ryuichi Matsuoka, Shinnosuke Seki, Hinano Takeuchi (The University of Electro-Communications)*
- [S14] Separation Problem from an Initial Circular Configuration by Bicolored Mobile Robots  
 \*\**Hirokazu Seike, Yukiko Yamauchi (Kyushu University)*

## Past Event

### ISAAC 2021 in Fukuoka from December 6th to 8th, 2021

The 32nd International Symposium on Algorithms and Computation (ISAAC 2021) was held in a hybrid manner; physically in Fukuoka, Japan and also online from December 6th to 8th, 2021. The symposium had 74 talks including 2 invited talks and received 184 online participants and 27 onsite participants (based on the number of registrations). Online talks were given with Zoom and onsite talks were given with Zoom and projector. Onsite participants enjoyed face-to-face discussions in the conference site.

Due to the uncertain situation of COVID-19, the organizing committee carefully chose the conference form and restricted on-site audience to people who live in Japan. The organizing committee thank the participants for active discussions online and offline during the conference.

## Forthcoming Event

### ISAAC 2022

International Symposium on Algorithms and Computation (ISAAC) is intended to provide a forum for researchers working in algorithms and theory of computation. The 33rd

edition of this symposium will be held in a hybrid manner; physically in Seoul, Korea and also online, from December 19th to 21st, 2022.

## **Mourning**

With great sorrow, we are sharing the sad news that Etsuji Tomita passed away last September and Takao Nishizeki passed away this January. Together with their outstanding research achievements, they are committed to building up TCS community not only in Japan but in Asian area, such as LA Workshop, COMP in The Institute of Electronics, Information and Communication Engineers (IEICE), SIGAL in Information Processing Society of Japan (IPSI), International Symposium on Algorithms and Computation (ISAAC), and International Conference and Workshops on Algorithms and Computation (WALCOM). We would like to express our deepest sympathy.

## **Acknowledgments**

We would like to thank Naoyuki Kamiyama for his great organization and report of ISAAC 2021.

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### **EATCS JAPAN CHAPTER**

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