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Keio University

## **ICPC Asia Yokohama Regional Contest 2018**

# **Contest Program**

Host: Keio University, Japan  
December 8-10, 2018

# International Collegiate Programming Contest Asia Yokohama Regional Contest 2018

Sanbo Hall and Kanagawa Kenmin Hall  
December 8-10, 2018

- Organized by
- ICPC Asia Yokohama Regional Contest Organizing Committee
  - International Information Science Foundation
  - Keio University
- Supported by
- Ministry of Economy, Trade and Industry
  - Ministry of Education, Culture, Sports, Science and Technology
  - Ministry of Internal Affairs and Communications
  - Japan Information Technology Services Industry Association (JISA)
  - Japan Science and Technology Agency (JST)
  - Information Processing Society of Japan (IPSJ)
  - Japan Society for Software Science and Technology (JSSST)
- ICPC Global  
Programming Tools  
Sponsor
- JetBrains
- Industrial Sponsorship
- bitFlyer, Inc.
  - LINE Corporation
  - MUJIN, Inc.
  - Preferred Networks, Inc.
  - Recruit Co., Ltd.
  - Google Japan G.K.
  - Tata Consultancy Services Japan, Ltd.
  - Akatsuki Inc.
  - DeNA Co., Ltd.
  - DWANGO Co., Ltd.
  - e-Seikatsu Co., Ltd.
  - Fixstars Corporation
  - freee K.K.
  - IBM Japan, Ltd.
  - KLab Inc.
  - Light Transport Entertainment, Inc.
  - NTT Communications Corporation
  - Opt, Inc.
  - ON Semiconductor
  - Retrieva, Inc.

## **Welcome to ICPC Asia Yokohama Regional Contest!**

It is a great pleasure to welcome all of you to the ICPC Asia Yokohama Regional Contest.

Keio University is proud to host the Asia Regional Contest for the second time; the first time being in 2006. ICPC has grown immensely since then. Last year, 49,935 contestants from over 3098 universities in 111 countries competed, culminating in the World Finals where Moscow State University took first place.

On July 6, 411 teams from 86 colleges and universities all over Japan competed in the Japan Online Contest. This is the first time that more than 400 teams participated. 51 teams from 38 colleges and universities advanced to the ICPC Asia Yokohama Regional Contest. An additional nine teams from China and Taiwan join the domestic teams bringing the total to 60 teams. This is also the largest number of teams to participate in a Japanese regional contest. They will vie for the rights to go to the World Finals which will be held in Porto, Portugal from March 31 to April 5, 2019.

We believe that this contest will be a great opportunity for participating students to demonstrate their programming skills acquired through their daily studies. We also believe that participation in this contest will be a wonderful opportunity for students of varying backgrounds to interact and exchange ideas with each other.

This contest would not have been possible without the contribution of many people. We would first like to thank Prof. Kiyoshi Ishihata and the judge team for spending countless hours preparing the contest problems. The ICPC Board oversaw the contest organization. The International Information Science Foundation handled many behind-the-scene tasks. The ICPC 'Secretaries' Team provided high-quality technical support and service. Thanks also go to all the volunteer staff including the ICPC Japanese Alumni Group and student staff from Keio University. Dr. Yutaka Watanobe kindly offered his online judge system to hold an Online Open Contest in conjunction with the contest. The 20 industrial sponsors provided invaluable financial support as well as an opportunity for students to meet and talk with them at the banquet. Among the industrial sponsors, NTT Communications Corporation provided high-quality network in the contest area, and DWANGO Co., Ltd supported live streaming of the contest via niconico channel. Last but not least, this contest would not even exist without all the participants, so a special thanks go to all participants at the Regional Contest AND those who unfortunately could not advance.

Good luck to all of this year's regional contest participants!

Shingo Takada

Director, ICPC Asia Yokohama Regional Contest 2018

Professor, Department of Information and Computer Science, Keio University, Japan

## Organizers

Director	Shingo Takada (Keio University)
Chief Judge	Kiyoshi Ishihata (Meiji University)
Organizing Committee Members	Hideharu Amano (Keio University) Claus Aranha (University of Tsukuba) Issei Fujishiro (Keio University) Katsuhiko Kakehi (IISF, Waseda University, ICPC Board Chair) Hiroshi Shigeno (Keio University) Fumio Teraoka (Keio University) Yutaka Watanobe (The University of Aizu) Takahiro Yakoh (Keio University) Rie Shigetomi Yamaguchi (The University of Tokyo)
Judges	Takashi Chikayama (The University of Tokyo) Kento Emoto (Kyushu Institute of Technology) Kazuhiro Inaba (Google Japan G.K.) Yoichi Iwata (National Institute of Informatics) Yuki Kawata (Indeed Japan) Koichi Kubota (Chuo University) Mitsuru Kusumoto (Preferred Networks, Inc.) Takanori Maehara (Riken) Kiminori Matsuzaki (Kochi University of Technology) Yoshihisa Nitta (Tsuda University) Tomohiro Oka (Google Japan G.K.) Etsuya Shibayama (The University of Tokyo) Tomoharu Ugawa (Kochi University of Technology) Fumihiko Yamaguchi (University of Nagasaki)
ICPC Board	Katsuhiko Kakehi (IISF, Waseda University, ICPC Board Chair) Takashi Chikayama (The University of Tokyo) Kiyoshi Ishihara (Meiji University) Etsuya Shibayama (The University of Tokyo) Shingo Takada (Keio University) Rie Shigetomi Yamaguchi (The University of Tokyo)
Liaison Members	Claus Aranha (University of Tsukuba) Kenichi Asai (Ochanomizu University) Takanobu Baba (Utsunomiya University) Akihiro Fujihara (Chiba Institute of Technology) Satoshi Fujita (Hiroshima University) Satoru Fukami (Osaka Institute of Technology) Hiromi Hiraishi (Kyoto Sangyo University) Atsushi Igarashi (Kyoto University) Takashi Imaizumi (Chiba University) Shigenori Ioroi (Kanagawa Institute of Technology) Hiroshi Ishikawa (Niigata University of International and Information Studies) Teiji Isokawa (University of Hyogo) Tomio Kamada (Kobe University) Takuya Kida (Hokkaido University) Isao Kikumasa (Yamaguchi University)

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	<p>Takeo Kikushima (Okayama Prefectural University) Akira Kitajima (Osaka Electro-Communication University) Satoru Kogure (Shizuoka University) Yoshimitsu Kuroki (Kurume National College of Technology) Emanuel Leleito (Nagoya University) Tadakatsu Masaki (National Institute of Technology, Okinawa College) Kenji Matsunaga (Senshu University) Makoto Matsushita (Osaka University) Tsunenori Mine (Kyushu University) Hidetoshi Mino (University of Yamanashi) Yuichiro Miyamoto (Sophia University) Kouichi Mouri (Ritsumeikan University) Yuichi Nakai (National Institute of Technology, Akashi College) Masaaki Niimura (Shinshu University) Hiroshi Ninomiya (Shonan Institute of Technology) Atsushi Nunome (Kyoto Institute of Technology) Kenya Sato (Doshisha University) Hiroaki Sawano (Aichi Institute of Technology) Ayumi Shinohara (Tohoku University) Nobuhiro Shirai (Mie University) Yasunobu Sumikawa (Tokyo Metropolitan University) Haruaki Tamada (Kyoto Sangyo University) Hisao Tamaki (Meiji University) Nari Tanabe (Tokyo University of Science, Suwa) Seiichi Tani (Nihon University) Takehiro Tazoe (Suzuka National College of Technology) Hiroyuki Tominaga (Kagawa University) Akira Uejima (Okayama University of Science) Toshiyuki Uto (Ehime University) Hironori Washizaki (Waseda University) Takuo Watanabe (Tokyo Institute of Technology) Yutaka Watanobe (The University of Aizu) Masaharu Yoshioka (Hokkaido University) Michifumi Yoshioka (Osaka Prefecture University)</p>
ICPC Secretaries	<p>Hidehiko Abe Yuichiro Hanada Takuya Hashimoto Takashi Imamichi Yusuke Izumi Shinya Kawanaka Yoshiaki Matsuoka Shinichiro Morikatsu Shohei Nishida Yu Sugawara Shuhei Takahashi Hiroshi Yamaguchi Rie Shigetomi Yamaguchi (ICPC Secretaries Chair)</p>

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**International Information Science Foundation**

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1-10-7, Shibuya, Shibuya-ku, Tokyo 150-0002, Japan  
Tel: +81-3-5766-3641  
Fax: +81-3-5766-3642  
E-mail: [office@iisf.or.jp](mailto:office@iisf.or.jp)

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**Contest Information**

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ICPC Asia Yokohama Regional Contest 2018  
<https://icpc.iisf.or.jp/2018-yokohama/asiaregional/>  
ACM-ICPC Japan Site  
<http://icpc.iisf.or.jp/>

## Timetable

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**December 8 (Sat) Yokohama Sanbo Hall (横浜産貿ホール)**

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13:00 – 14:00 Registration  
14:00 – 16:30 Opening, Orientation, and Rehearsal  
16:30 – 18:00 Team Introduction (presented by LINE Corporation)  
(Dinner on your own.)

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**December 9 (Sun) Yokohama Sanbo Hall (横浜産貿ホール)  
& Kanagawa Kenmin Hall (神奈川県民ホール)**

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08:40 – 09:10 Contest Check-in (Yokohama Sanbo Hall)  
09:30 – 14:30 Asia Regional Contest (Yokohama Sanbo Hall)  
Note: There will be no space for coaches within the Sanbo Hall.  
Coaches are requested to go to Kanagawa Kenmin Hall.  
15:10 – 15:50 Commentaries on Problems (Kanagawa Kenmin Hall)  
15:50 – 17:10 Award and Closing Ceremony (Kanagawa Kenmin Hall)  
17:30 - 19:30 Closing Party (Yokohama Sanbo Hall)

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**December 10 (Mon)**

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10:00 – 17:00 Office tour (Only for those who have registered)

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**Opening** (14:00 – 14:20, Dec. 8; Yokohama Sanbo Hall)

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Director: Shingo Takada (Keio University)

1. **Message from the Director**
2. **Greetings from Keio University**  
Hideharu Amano (Chair, School of Science for Open and Environmental Systems, Keio University)
3. **Orientation**

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**Team Introduction** (16:30 – 18:00, Dec. 8; Yokohama Sanbo Hall)

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Chair: Shingo Takada (Keio University)

1. **Greetings from Industrial Sponsors**  
Rinto Shimizu (NTT Communications Corporation)
2. **Distinguished Service Award**
3. **Team Introduction**

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**Commentaries on Problems** (15:10 – 15:50, Dec. 9; Kanagawa Kenmin Hall)

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Chief Judge: Kiyoshi Ishihata (Meiji University)

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**Award and Closing Ceremony** (15:50 – 17:10, Dec. 9; Kanagawa Kenmin Hall)

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Chairs: Shingo Takada (Keio University) and Claus Aranha (University of Tsukuba)

1. **Opening Remarks and Greetings**  
Katsuhiko Kakehi (Chair, International Information Science Foundation)
2. **Greetings from Platinum and Gold Sponsors**  
Kyle Furuya (Human Resources, bitFlyer, Inc.)  
Takuya Akiba (Chief Research Strategist, Preferred Networks, Inc.)  
Ryuoh Yamauchi (GM of HR · PR Division, MUJIN, Inc.)  
Chihiro Komaki (Senior Software Engineer, Indeed Tokyo)  
Eliot Courtney (Software Engineer, Google Japan G.K.)  
Satoko Tamura (HR Talent Acquisition, Tata Consultancy Services Japan, Ltd.)
3. **Short Greetings from Silver Sponsors**
4. **Results and Awards**  
Announcement of Results and Awards
5. **Closing Remarks**

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**Closing Party** (17:30 – 19:30, Dec. 9; Yokohama Sanbo Hall)

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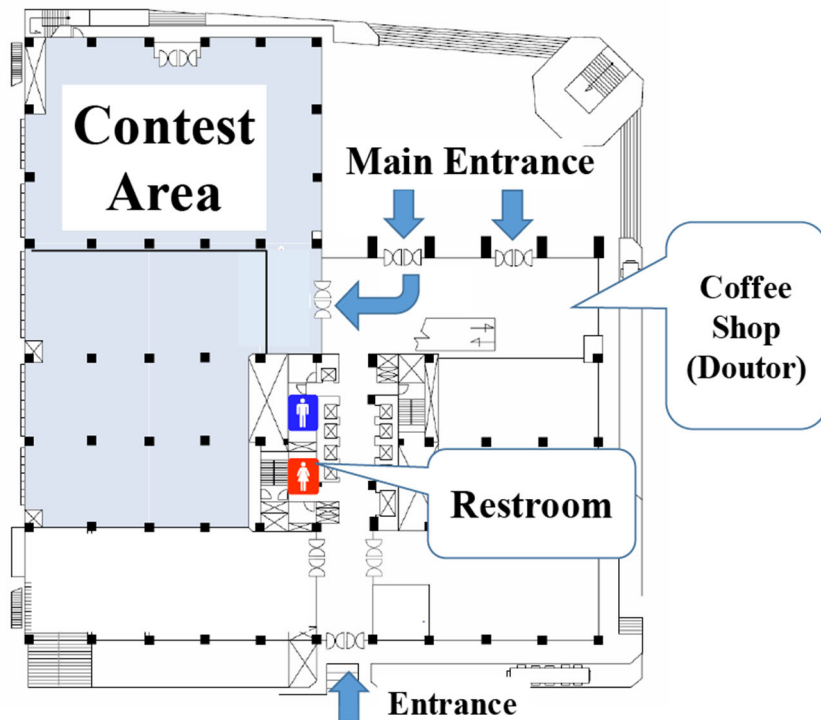
Chair: Shingo Takada (Keio University)

0. **Commemorative Photo**
1. **Sponsors' Prizes**  
Prizes from Industrial Sponsors
2. **Party Time!**

### Map of Area



### Yokohama Sanbo Hall





## Participating Teams

Team	Institution
choco-yokan	Aichi Institute of Technology
Tech_ONC	Akita University
GPA_EPS	Aoyama Gakuin University
fal___Murachiki	Chiba Institute of Technology
ABC_dog_bit_pig	Chung Hua University
hoge_piyo_matsuri	Doshisha University
four-t	Hokkaido University
Megido	Hokkaido University
Rescue the Mushroom!	Hong Kong University of Science and Technology
SMZsolver	Kanazawa University
CatKOder	Keio University
Masuo Bombers	Keio University
getting_over_32	Kobe University
TEAM_IZ	Kobe University
Ashigaru	Konan University
earlybird	Kyoto University
Tigerzet	Kyoto University
Zerokan_Sunshine	Kyoto University
konjo_jam	Kyushu University
FunamiYui	Meiji University
mata nya-n	Mie University
SaTaniCh	Muroran Institute of Technology
ntunoobs II	Nanyang Technological University
T is NA	Nara Institute of Science and Technology
NCTU_ Teumessian	National Chiao Tung University
NaottiMinMax	National Institute of Technology, Matsue College
SuperEdge	National Taiwan Normal University
Undeclared	National Taiwan Normal University
JAW	National Taiwan University
C-C	Nihon University
odan	Osaka Institute of Technology
BFS	Osaka University
Phewwww	Peking University
priMe.caT	Ritsumeikan University
Semuderna	Saitama University
Manual/Intelligence	Shanghai Jiao Tong University
kstm	Shinshu University
Chicks	Shizuoka Institute of Science and Technology

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ei1333	Shizuoka University
S0PH1A	Sophia University
WArabimochi	The University of Electro-Communications
Apollopia	The University of Tokyo
catsatmat	The University of Tokyo
Gifted Infants	The University of Tokyo
UT a.k.a Is	The University of Tokyo
Aobayama_dropout	Tohoku University
60odnight	Tokyo Institute of Technology
narianZ	Tokyo Institute of Technology
new_moon_with_face	Tokyo Institute of Technology
nowcow	Tokyo University of Agriculture and Technology
whiteTshirts	Tokyo University of Science
TripleDualCore	Toyota Technological Institute
Return_ZUKKY	University of Aizu
UKUNICHIA	University of Aizu
tojimbo	University of Fukui
..	University of Tsukuba
iwiwi	University of Tsukuba
AtComleader	University of Yamanashi
Mohuhu University	Waseda University
WAsedAC	Waseda University