Tianchi Global A.I. Challenge on Meteorology
— Catch Rain If You Can

Background

The vision of "Smart Cities, Smart Nations" is shared by increasingly many countries and mega cities. China, including the Greater Bay Area over the Pearl River Estuary, is no exception. Its fast train has set off and is speeding up towards the destination. The question is how to *stay dry in Greater Bay ride*?

Being mega cities in the Greater Bay Area, Shenzhen, Hong Kong and other cities alike are often bombarded by different types of severe weather with varying degrees of high impact to the societies and people's safety. Heavy rain is such an example with notoriously volatile nature, rendering a catch extremely difficult, if not impossible, even in the next couple of hours. Can our cities be made smart enough to be shielded from severe weather impacts? Is artificial intelligence (A.I.) the right agent to uphold the "shield"? To this end, Meteorological Bureau of ShenZhen Municipality (SZMB) and the Hong Kong Observatory (HKO) have jointly made a visionary decision to jump out of the meteorological box and post the grand challenge of "Catch Rain if You Can!" on the cloud of Tianchi, Alibaba Cloud, hoping that A.I. marvels all over the world can team up and help people *stay dry in Greater Bay ride*!

The A.I. Challenge

A.I. marvels will be given big data of heavy rain suspects in form of historical weather radar pictures (collectively referred to as SRAD2018, jointly developed by SZMB and HKO). Different suspects have different rainfall severity and tracking patterns, which have to be learned thoroughly and classified precisely during the data mining process using cutting-edge machine learning / A.I. technologies. In the end, the A.I. "shields" so built shall be smart enough to catch new heavy rain suspects given unseen clues with foresights on their future crime pattern up to three hours ahead (i.e. where? when? and how severe to rain?).

The Winning Shields

All participating A.I. "shields" (i.e. A.I. computer programs) will be given two test data sets (for the Qualifying and Final Tests respectively) randomly drawn from SRAD2018 for making predictions of rainfall patterns with lead times up to 180 minutes, in step of 30 minutes. Upon submission of the predictions, scores will

be calculated and ranked automatically on Tianchi according to the accuracy of the predicted patterns mainly based on an objective verification method. The detailed algorithm for assessment of rainfall prediction accuracy was developed jointly by SZMB and HKO, with bonus (higher weightings) for longer lead times and higher rainfall severities. The top-5 ranked A.I. shields among the finalists will become the winners and bestowed with awards.

Contest Arrangements

All participants must go through the registration process. This contest consists of two phases: the Qualifying Test and the Final Test. Specific timelines and regulations are as follows:

● **Registration Process**

1. Visit the "Tianchi Global A.I. Challenge on Meteorology" official website: https://www.alibabacloud.com/campaign/ICDM2018

2. Participants can log on to Tianchi platform with their existing Alibaba Cloud account or create new ones.

3. Registration is open from 23 May 2018 to 10 September 2018 with closing time at 10:00 a.m sharp.
   (*Note* : all time stamps of this Contest refer to Beijing time, i.e. UTC+8)

4. Each participant and participating team should read and accept the contest arrangement (including the "Undertaking of Standardized Radar Dataset Version 2018").

● **The Qualifying Test** (23 May 2018 – 10 September 2018)

1. After successful registration, contestants can download the training and qualifying test data from Tianchi platform, study the SRAD2018 technical document, develop and debug the algorithms at their own environment and submit the results online. If a participating team submits results multiple times within a day, only the latest results will count. There is no restriction to the number of submissions.

2. From 25 June 2018 onwards, the system will carry out evaluation and ranking every day. The evaluation starts from 10:00 a.m. and the participating teams will be ranked based on the running highest evaluation scores achieved during the Qualifying Test period.

3. The deadline of the Qualifying Test is 10 September 2018 with closing time at 10:00 a.m. sharp. The top 100 teams must complete the identity verification and then get the qualification to the next phase of the Final Test. For international participants who do not use Alipay, please upload an ID card for verification. (Verification Guide: http://t.cn/R3pWEuJ)

● **The Final Test** (17 September 2018 – 10 October 2018)

1. Contestants can download the Final Test data from Tianchi platform, fine tune the algorithms and submit the results online. Similar to the Qualifying Test, if a participating team submits results multiple times within a day, only the latest results will count. There is no restriction to the number of submissions.

2. From 18 September 2018 onwards, the system will carry out evaluation and ranking every day. Similar to the Qualifying Test, the evaluation starts from 10:00 a.m. and the participating teams will be ranked based on the running highest evaluation scores achieved during the Final Test period.

3. The deadline of the Final Test is 10 October 2018 with closing time at 10:00 a.m. sharp. The top 5 teams on the leaderboard of the Final Test should submit source code and a report for review on or before 10:00 a.m. on 15 October 2018. Detailed requirements for the report will be informed through email.

4. Upon successful review, the 5 winning teams will be invited and sponsored to attend the awards ceremony and present their innovations at the IEEE ICDM 2018 (http://icdm2018.org) in Singapore.

Eligibilities

The contest is open to everyone except employees of the Meteorological Bureau of ShenZhen Municipality, Hong Kong Observatory, Alibaba Cloud and their subsidiaries. A participating team may be composed of one to four members/contestants. The registration information of all contestants must be correct and valid. Each contestant can only register for one participating team or else he/she will be disqualified from the contest. Except for the official SRAD2018 dataset, use of other information is considered cheating and the corresponding team will be disqualified from the competition.

Awards

- First prize: 12,000 USD

- Second prize: 6,000 USD

- Third prize: 3,000 USD

- Fourth prize: 1,500 USD

- Fifth prize: 1,000 USD

In addition to monetary prizes, the 5 winning teams will be invited to attend the award presentation ceremony and showcase their innovative works at the IEEE ICDM 2018 workshop, each with additional 1,500 USD as travel allowance.

Sharing of Results

The winners are committed to share their source codes and documentations of their winning AI computer programs as accepted in the undertaking of SRAD2018 datasets.

Privacy and Copyright

Meteorological Bureau of ShenZhen Municipality and Hong Kong Observatory reserve the copyright of the data provided in this competition. The data should be used only for the purposes as accepted in the undertaking on the use of SRAD2018 datasets.

Contact Us

If you have any questions, please contact icdm2018@alibabacloud.com
(Before you contact us, please check if your question has been answered in our FAQ).

Organizers

Meteorological Bureau of ShenZhen Municipality (SZMB)

Hong Kong Observatory (HKO)

Alibaba Cloud

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