GECCO 2018 Industrial Challenge: Call for Participation

Internet of Things: Online Anomaly Detection for Drinking Water Quality

2018 GENETIC AND EVOLUTIONARY COMPUTATION CONFERENCE (GECCO)
July 15-19, Kyoto, Japan
Sponsored by ACM SIGEVO
http://gecco-2018.sigevo.org/

27th International Conference on Genetic Algorithms (ICGA)
and the 23th Annual Genetic Programming Conference (GP)

Largest Conference in the Field of Genetic and Evolutionary Computation

Overview

The provision of clean and safe drinking-water is an essential task for water supply companies all over the world. To deal with this scenario, highly sensible sensors monitor relevant water- and environmental data at several measuring points, on a regular basis. The monitored data can be analyzed to discover any kinds of anomalies. Early identification of anomalies in water quality data is a challenging task. It is important to identify true undesirable variations in the water quality. At the same time, false alarm rates have to be very low. This brings in the need for developing a robust and reliable early anomaly identification system that enables the water supply companies to counteract in time.

Based on the 2017 GECCO industrial challenge an updated more advanced problem is provided. This year's industrial partner again is Thüringer Fernwasserversorgung (TFW), which provides the real-world dataset used in this challenge. Goal of the GECCO 2017 Industrial Challenge is to develop an event detector to accurately predict any kinds of changes in a time series of drinking water composition data.

Additionally, for the first time in the GECCO history we are now able to provide the opportunity for all participants to submit 2-page algorithm descriptions for the GECCO Companion. Thus, it is now possible to create publications in a similar procedure to the Late Breaking Abstracts (LBAs) directly through competition participation!

Highlights of the GECCO 2017 Industrial Challenge include:

- *Real-world Data:* Real drinking-water time series are provided for training, testing, and assessing event detection methods.
- *Direct Link to Industry:* The Thüringer Fernwasserversorgung will evaluate the winning submissions for an implementation in real-world applications. Moreover, a direct contact with the winning participants, who will keep all rights to their detection system, is highly appreciated by Thüringer Fernwasserversorgung.
- *Publication Possibilities:* For the first time in GECCO history we are able to accept 2-page submissions for the GECCO Companion, thus publications are possible directly through competition participation.

About the Thüringer Fernwasserversorgung

Located at the heart of Germany, Thüringer Fernwasserversorgung is a public water company with its headquarters in Erfurt. Thüringer Fernwasserversorgung operates more than 60 dams and reservoirs, 2 central water treatment plants and 550 km of bulk water transport network. With about 200 employees Thüringer Fernwasserversorgung transfers more than 50 million cubic meters of raw water and drinking water to its clients, local and municipal water supply companies, thus ensuring a reliable supply of highest quality drinking water to more than 1 million people.

Important Dates and Contacts

- *Challenge Website*: *http://spotseven.de/gecco-challenge*
- *Software and Data Availability:* TBA
- *2-Page Algorithm Description Submission Deadline:* 27-Mar-18
- Final Submission Deadline without Publication Possibility: TBA
- *Organizers:* F. Rehbach, M. Rebolledo, S. Moritz, S. Chandrasekaran, T. Bartz-Beielstein (TH Köln)
- *Industry Partner:* Thüringer Fernwasserversorgung, Erfurt, Germany, *http://www.thueringer-fernwasser.de/*
- *Contact:* *gecco@f10.fh-koeln.de*