GECCO 2013 Industrial Challenge

Optimizing Room Climates by Climate Data Forecasting

2013 GENETIC AND EVOLUTIONARY COMPUTATION CONFERENCE (GECCO)

July 06-10, Amsterdam, The Netherlands

Sponsored by ACM SIGEVO   http://www.sigevo.org/gecco-2013

22th International Conference on Genetic Algorithms (ICGA)
and the 18th Annual Genetic Programming Conference (GP)

Largest Conference in the Field of Genetic and Evolutionary Computation

Overview

When the words health, wellness and cost reduction go hand in hand, the topic is probably "smart home". The human feeling of warmth is determined by the surrounding temperature as much as by the humidity. At a humidity of about 60 percent, most people already feel comfortable warmth at 20°C. In contrast to this, a temperature of 23°C is needed for the same feeling of warmth at 30 percent humidity. A room climate with low humidity generated by strong heating encourages coughs and sneezes whereas a humidity of 60 percent or higher in combination with sparse ventilation eases the formation of mold. Furthermore, it is a matter of fact that each degree Celsius less heating shaves 6 percent off heating costs.

Smart home equipment records room climate data every time a value changes and checks the weather forecast at regular intervals to gain additional knowledge. The data collected can be correlated and analyzed to discover the particular heating properties of the room, the influence of the weather on the room climate and user specific patterns and preferences. This knowledge can be used to safe heating energy by only consuming energy that is really needed. Goal of the GECCO 2013 Industrial Challenge is to develop accurate forecasting methods for room climate profiles. Accurate forecasts build a sound basis for intelligent heating control. This reduces energy consumption and still provides a comforting and healthy room climate.

Highlights of the GECCO 2013 Industrial Challenge include:

- *Interesting Problem Domain:* Forecasting room climate data based on smart home and ambient temperature data offers a challenging test case for modern time series prediction methods.

- *Real-world Data:* Real room climate time series, irregularly recorded when values change, are provided for training, testing, and assessing forecasting methods.

- *Direct Link to Industry:* GreenPocket GmbH will evaluate the winning submissions for real-world application and will be in direct contact with the winning participants, who will keep all rights to their forecasting systems.

About GreenPocket

GreenPocket provides pioneering software for smart metering and smart home solutions. Combining the best of the Internet with the new world of smart energy, GreenPocket enables utility companies to significantly increase their customer's energy efficiency. Founded 2009, GreenPocket is Germany's leading software provider for consumer-orientated smart energy software.

Important Dates and Contacts

- *Challenge Website*: *http://spotseven.de/gecco-challenge*
- *Software and Data Availability:* April 1, 2013
- *Challenge Submission Deadline:* TBA
- *GECCO-2013 Conference:* July 06-10, 2013
- *Organizers:* O. Flasch, M. Friese, T. Bartz-Beielstein (Cologne University of Applied Sciences), J. Neuhalfen (GreenPocket GmbH)
- *Industry Partner:* GreenPocket GmbH,

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GECCO is sponsored by the Association for Computing Machinery Special Interest Group for Genetic and Evolutionary Computation (ACM SIGEVO).