Advanced Analytics

Forecasting Technology Platform

MARKET NEED

Different areas of the economy require precise forecasts of future events based on knowledge collected from the past. Technology platforms which are accurate and effective in acquiring and processing such information are of great value to the market because they assist in planning and helping to prepare for what is coming. Unlike typical forecasting which can be based on informal methods, optimal forecasting methodology can be conducted based on scientific tools to assure proper outputs. As a result, appropriate feedback on a given problem can successfully warn if the process under investigation is heading towards an undesired direction. This result, in turn, can support managers with meaningful information that allows them to improve planning. An automated forecasting platform can result in trustworthy analytics which leads to better decision making processes. Successful forecasting can minimize risk which is associated with the unknown future, and if properly utilized may give rise to the profits which would not be achievable otherwise.

TECHNOLOGY SOLUTION

CeADAR's standalone platform personalises the forecasting model for monitored units to perform more accurate predictions. From the end-user perspective, the solution is a toolbox of advanced analytics, which is capable of using past data streams to predict the future with high accuracy at varying, customisable time scales. Preliminary research shows that this approach outperforms standard models used in industry. Since this technology customises calculations according to the unique features in the input data stream and produces an output prediction data stream for further analysis, this tool can benefit the end customer by improving their planning according to these more accurate forecasts.

This platform selects and auto-configures prediction algorithms which are optimal for each unit of interest. This system predicts future output of interest in advance and has the following features:

- Is capable of performing calculations in a continuous manner,
- Can be implemented as an online system,
- Is self-adapting to changes in the input data stream and creates a framework where each unit is individually analysed with a unique set of control parameters defined by the end-user.

APPLICABILITY

This research will benefit any company which wishes to enhance its future planning with a solution that automatically determines the optimal prediction model for a single or multiple input data streams based on the knowledge from the past. Moreover, this technology platform is capable of auto-configuring to the unique features of a data stream giving rise to the methodology which is accurate and credible for planning purposes.

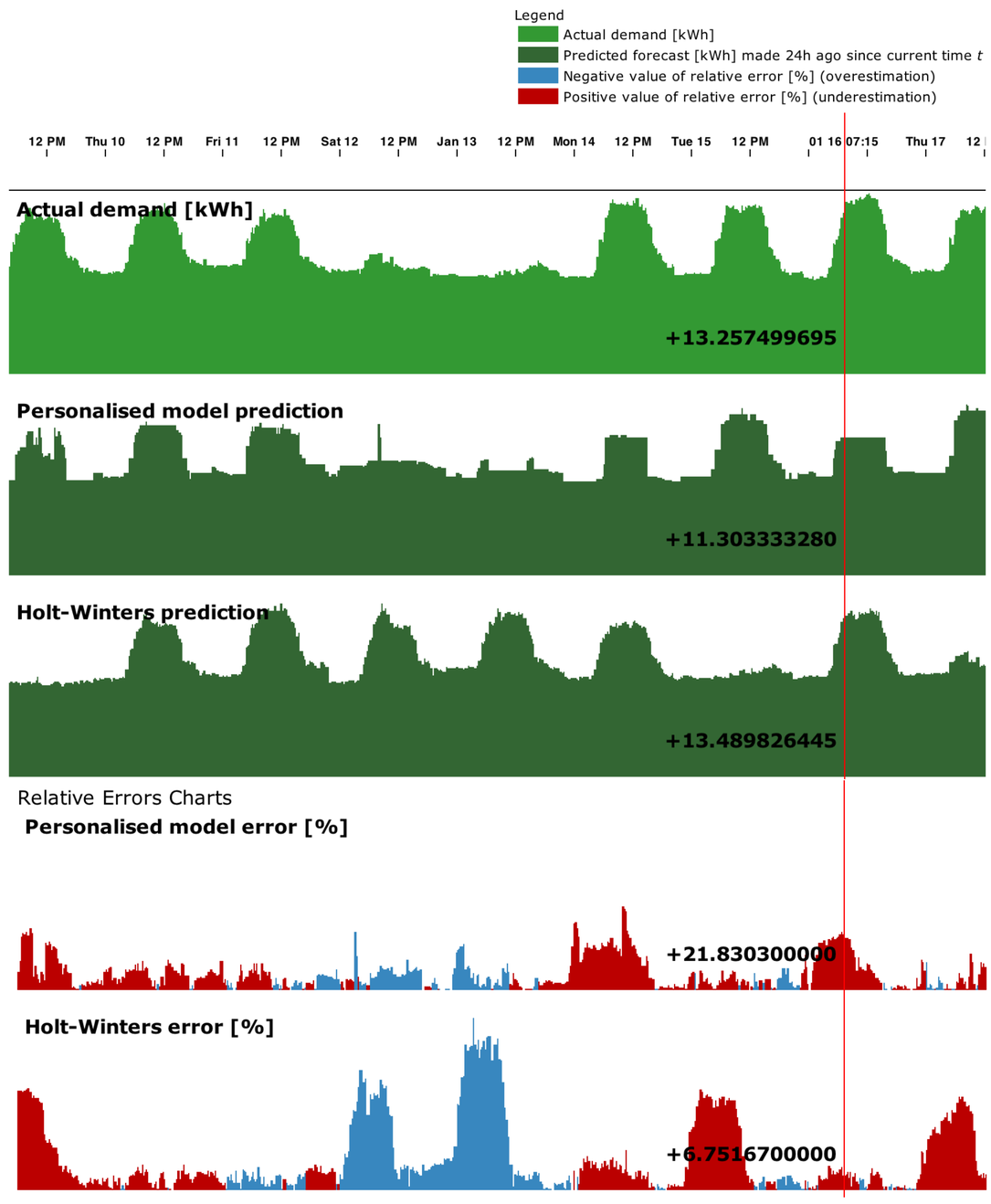

Figure 1: Interactive animated visualization of continuous demand prediction of UCD Computer Science building

RESEARCH TEAM

Prof. Pádraig Cunningham, UCD Computer Science & Informatics

Dr. Oisin Boydell, UCD Computer Science & Informatics

Dr. Marek Landowski, UCD Computer Science & Informatics

Dr. Gerard Lynch, UCD Computer Science & Informatics

Dr. Guangyu Wu, UCD Computer Science & Informatics

Follow **CeADAR Ireland**:

Data Analytics

AN ENTERPRISE IRELAND & IDA IRELAND INITIATIVE