PREDICTION SOLUTIONS 2024

Forward

The International Conference on Prediction Solutions for Technical and Societal Systems (PREDICTION SOLUTIONS 2024) event series is concerned with prediction facets in various technical, societal, and sense-based observations by gathering information, identify patterns, and defining (future) system requirements. The output of prediction is a set of critical factors used to evaluate systems' characteristics qualitatively and quantitatively, as well as forecast the service demand directions. Prediction provides input on scalability, resilience, resource allocation, etc. and provides guidelines for future decisions. The conference was held in Nice, France, November 3 - 7, 2024..

Organization predictions, market predictions, weather predictions, automation predictions, or ultimately, Garner curve technical predictions, constitute mechanisms and fundamental driving (future evaluation) methodologies for society's industrial, investment, and customer behavioral expectations.

Generally, the prediction is concerned with estimating the outcomes for unseen data (rather than document observations); a sub-discipline considering time series data is the forecast, where the temporal dimension is shorter. Predictive processes are based on historical data combined with statistical modeling, data mining techniques, and machine learning. Prediction is leveraging data and patterns that are continuously gathered by forming datasets, using simulated samples, and statistics techniques.

The process starts with sensing data, identifying situations, and changes of different situational parameters. Via correlation functions and hypothesis, a variation of an input metric under observation triggers a set of metrics along with quantitative/qualitative characterizations (what? how much? when, for how long? etc.).

Most of the technical decisions in transportation systems based on long terms traffic patterns, QoS delivery and SLA satisfaction in wireless and ubiquitous systems (based on QoE) or progresses in adopting 5G/6G and Industry 4.0/5.0) are based on an ensemble of successful technical factors, successful service delivery, and lessons learned. However, further development is linked to collecting data, applying mechanisms, predicting, testing, and confirming the perceived tendency.

Complex domains, dynamics changes, and entangled metrics relations make some events difficult to predict, with a large range of impreciseness. Generally, predictions are based on observable (sensed) metrics of a phenomenon in a given context, without considering internal variables/parameters of the phenomenon.

For forecasts (shorter terms predictions), the precision is critical (eventually concluding with an estimated probability). For hurricanes, the prediction of landing location is critical. Therefore, internal parameters are considered. For very short terms, forecasting is only partially possible, and dynamics that change suddenly leave no time to process unpredictable details (tornadoes).

Recursive predictions might be triggered by repetitive patterns, which are observed occurrences of a series of predictions with high score, eventually being endorsed as (pseudo-)laws. The most famous is the so-called "Murphy's Law".

We take this opportunity to thank all the members of the PREDICTION SOLUTIONS 2024 Technical Program Committee as well as the numerous reviewers. The creation of such a broad and high-quality conference program would not have been possible without their involvement. We also kindly thank all the authors who dedicated much of their time and efforts to contribute to the

PREDICTION SOLUTIONS 2024. We truly believe that, thanks to all these efforts, the final conference program consists of top quality contributions.

This event could also not have been a reality without the support of many individuals, organizations, and sponsors. We are grateful to the members of the PREDICTION SOLUTIONS 2024 organizing committee for their help in handling the logistics and for their work to make this professional meeting a success.

We hope the PREDICTION SOLUTIONS 2024 was a successful international forum for the exchange of ideas and results between academia and industry and to promote further progress with respect to prediction technologies. We also hope that Nice provided a pleasant environment during the conference and everyone saved some time for exploring this beautiful city

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