System for Automatic Error Estimate Correction for a Machine Learning Model

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Inventors: Dane Morgan, Ryan Jacobs, Glenn Palmer

The Invention

UW-Madison researchers have developed a computational method for correcting the error estimate of a prediction. Implemented in computer software, the method leverages existing data sets to compute curve descriptive values that are used as a comparator, which can ultimately be used to improve a model's domain.

Operationally, an input dataset is split into a training dataset and a validation dataset, a predictive model and a domain model are trained, the trained predictive model and the trained domain model are validated, a predictive error value, a residual value, and a domain error value are computed, and each value is stored in output data. A domain threshold value is computed from the stored domain error values. Each predictive error value and each residual value stored in the output data is stored in in-domain output data when a respective domain error value is less than or equal to the computed domain threshold value. Curve descriptive values are computed to describe a relationship between the residual values as a function of the prediction error values stored in the in-domain output data.

Key Benefits

- Uses both distances in feature space (X) and model uncertainties in target space (Y) to assess model domain

Additional Information

For More Information About the Inventors

- Dane Morgan

Tech Fields

- Information Technology : Computing methods, software & machine learning

For current licensing status, please contact Michael Carey at mcarey@warf.org or 608-960-9867