# Abstract

of attestation master's degree work

subject:

"Research of short-time data behavior forecasting methods from customer electronics’ sensors"

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**The purpose of work**

The aim of this work is to study the existing methods of forecasting and filtering time series, which comes from sensor consumer electronics.

**The relevance of spent researches**

Relevance of the topic of this thesis lies in the fact that the development of electronic sensors is increasingly used in consumer electronics. In this regard, there is a need to make predictions about the behavior of devices based on time series with its sensors. A promising direction is to study methods of filtering and short-term forecasting of the following terms of time series based on the previous terms in the series.

The relevance is to use short-term time series forecasting in support systems and decision-making users.

**Tasks solved in work**

The master work analyzes the methods of prediction and smoothing and the main advantages and disadvantages of these methods. Also it was shown promising ways to address existing deficiencies. In addition, methods have been implemented prediction and smoothing, which helped to obtain a large amount of experimental material.

**The results achieved**

The results of the work done are the large number of theoretical and practical experimental material to filter and short-term prediction of time series. Was structured the theoretical part of forecasting techniques, implemented all the

mentioned above methods, as well as a method for training the prediction algorithm depending on the nature of the curve of time series.

**Scientific novelty**

Scientific novelty of the work is to study methods of short-term prediction as a means of processing time series coming from the sensors, consumer electronics. The methods are powerful tools for time series analysis and can be used as a component of support systems and making the user.

**The practical value**

The practical value of this work is to obtain systematic information on the domain smoothing and forecasting time series, as well as the graphic material that confirms the promise of the methods considered. Also proposed recommendations to reduce the prediction error in time series members, because of the influence of external factors.

**Conclusions and recommendations**

The paper confirmed the relevance of the topic based on an analysis of a large number of time series, as with the test environment, and with the sensors of the real consumer device - the mobile phone. The study proposed recommendations for the use of each of the above methods.

Work on 94 sheets contains 10 tables, 34 illustrations. In preparing the work used literature from 18 different sources.

The list of keywords:

*methods for predicting short-term members of the time series, forecasting time series noise filtering in the time series, extrapolation, spline cubic extrapolation, polynomial extrapolation, linear extrapolation, linear prediction, support systems and decision-making users.*