



STROIA IULIANA

RESEARCH ENGINEER

Contact

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Experience

Research Engineer

Siemens Technology, Brasov (Romania) | 03/08/2020 - Present

- design, develop, test and maintain knowledge graph
- integrate and create required transformations of data
- create data pipeline using Python
- create visual solutions for knowledge graph data
- develop frontend solutions using Metaphactory
- software development processes
- concept studies and alignment with business

Trainee

EasyIC Design, Brasov (Romania) | 15/07/2019 - 15/09/2019

- building a design for a given circuit, implemented in Verilog-correctly designing the circuit with the help of assertions and constraints - visualizing registers' behavior with waveforms -creating a testing environment for checking the design by using SystemVerilog

IT Operator

ECENTA Eastern Europe, Brasov (Romania) | 18/02/2019 - 10/05/2019

- creating a web application for selling books, using MVC architecture
- using Spring framework and MySQL database
- learning basic notions about Apache Tomcat, JSP, JavaScript and Ajax

Trainee

Atos Convergence Creators SRL, Brasov (Romania) | 10/08/2018 - 08/03/2019

- creating the network topology of the Institute of Transilvania University of Brasov -making the inventory of the hardware equipment
- installing virtual machines
- documenting the actual software situation
- proposing and trying the improvement of the actual situation
- learning the basic characteristics of Python

Education

Student

University of electric engineering and computer science, Transilvania University, Brasov | 2020 - 2022

Master's Degree-Electronic Circuits and Integrated Circuits

Student

University of electric engineering and computer science Transilvania University, Brasov | 2016 - 2020

Bachelor Degree-Computer Science

Baccalaureate

National College DR Ioan Mesotă Brasov, Romania | 2012 - 2016

Publications

Conference Article

<https://ieeexplore.ieee.org/document/9301140>

A SURVEY ON OUTLIER DETECTION METHODS APPLIED ON AIR QUALITY DATA

| 2020

Abstract:

This paper presents a study on the impact of various time series prediction algorithms applied on air quality data. This data is obtained from several sensors measurements, at every passing minute. The current research is concerned about finding a solution for a prediction algorithm based on fit functions. Traditional statistics models such as ARIMA (AutoRegressive Integrated Moving Average Model) and modern ones, like Facebook Prophet, were used for a comparative approach. Moreover, our proposed method has also been tested using different types of regression: Linear, Polynomial and Spline. After having made all the possible analogies between the selected algorithms for the given time series, regression spline has been found as the most accurate model. The purpose of this paper is to explain and to convince that results behave in a different manner depending on the used algorithm. The research has been done by studying air quality measurements received from various sensors. The study analyses sensors' values over a period of several months, obtaining over 43000 measurements per month for each sensor. The paper discusses the data obtained and its accuracy is tested using various metrics of evaluation.

Personal Projects

2020

BACHELOR DEGREE „MONITORING AIR QUALITY EVOLUTION IN A SPECIFIC AREA”

This project is done with Flask framework, combining several technologies, such as Python, JavaScript, jQuery și MySQL. Its goal is studying data received from certain sensors which measure air quality, such as formaldehyde, carbon dioxide, particulate matter of different dimensions, ozone, volatile organic compound, humidity, pressure and temperature. The workflow follows some steps, such as preparation of data, their analysis, the detection of possible anomalies and obtaining some services, such as timeseries, predictions and heatmaps. Recorded data was taken from a device situated in the center of Brasov. The project aims to test several prediction algorithms, so that their accuracy can be determined. Moreover, their performance is tested by metrics and residual plots. The project combines statistical elements and machine learning. Also, the project calculates the air quality index for the given concentrations recorded by the sensors and displays the results in a representative colored heatmap. Moreover, the application is available in two languages: Romanian and English. The application uses API to obtain the recorded data and also to collect real time information about the air quality index from the whole world. Moreover, the project offers predictions for the next five days for all sensors which present interest.

LIBRARY PROJECT

This project is done using JavaFX and presents the user the ability to connect as user and also as administrator of the application. The latter can extend the borrow time of books for a certain user, can take control of the whole library and can also visualize the registered users. The regular user can borrow books, as far as they are available. Moreover, the users can edit their personal data.

DRAWING PROJECT, SIMILAR TO MS PAINT

This project lets the user create a drawing. It is done using JavaFx and offers functions such as uploading a photo, editing it and drawing on a canvas. Moreover, the drawing can be done with brushes of different sizes, the background can have different colors and the final result can also be saved on the device.