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Graph Analysis with Big-data

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***Abstract*—**Big Data concern large-volume, complex, growing data sets with multiple, autonomous sources. With the fast development of networking, data storage, and the data collection capacity, Big Data are now rapidly expanding in all science and engineering domains, including physical, biological and biomedical sciences. HACE theorem that characterizes the features of the Big Data revolution, and proposes a Big Data processing model from the data mining perspective. The planning of several optimal tuning processes, the comparison of different designs (through graphics or the numeric results obtained), and the management of data files saved during the planned optimal tunings process. The developed tool was made available to students for them to solve a practical problem and, subsequently, the impact of its use was evaluated. There are techniques to learn the categories (clustering). Methods of pattern recognition are useful in many applications such as information retrieval, data mining.

***Keywords*—**MIMO,NLP,RGA,PIP..

I. INTRODUCTION

In higher education, 'assessment' refers to any processes that appraise an individual's knowledge, understanding, abilities or skills. Quality assessment practices are an important element of the student experience, with the outcomes of assessment influencing students' future lives.

College of Engg is committed to promoting good practice, consistency in assessment by ensuring that the following principles are adhered to:

Assessment is reliable, with clear and consistent processes for the setting, marking, grading and moderation of assessment exercises. A reliable assessment will produce the same results on re-assessment, and will produce similar results with a similar cohort of students, so it is consistent in its methods and criteria

- Assessment is valid, effectively measuring student attainment of the intended learning outcomes
- Assessment is inclusive and equitable, ensuring that tasks and procedures do not create disadvantages for any group or individual
- Assessment procedures are transparent, and the criteria and methods by which students' work is judged are made clear to students, staff and external auditors
- The amount of assessed work is manageable
- Each programme is to include a variety of assessment types, in order to promote effective learning and allow a range of learning outcomes to be appropriately addressed.

To tune controllers employed in control structures, various techniques can be used, some of which are based on optimization. These optimization-based tuning methods can be classified into two groups: those using traditional optimization algorithms and those using evolutionary computation algorithms, frequently genetic algorithms (GAs). In recent years, evolutionary computation algorithms have been used instead of traditional optimization algorithms because they provide a much greater efficiency in obtaining the global optimum and thus minimize the computational cost.

II. EASE OF USE

A. *Selecting a Template (fuctions in data)*

From an educational point of view, it would be useful to have software tools that allow design of control structures from simple, flexible descriptions and that offer a wide range of options.In this respect, it is noteworthy that various simulation programs already exist to design controllers for MIMO systems using traditional tuning methods. There are also tools that simulate MIMO processes on which it is possible to design different control strategies, and virtual labs that allow tuning of a real plant's controllers. However, it is difficult to find simulation tools for the optimal tuning of controllers for MIMO control systems. It is therefore of interest to develop a tool like that presented here: a software tool developed in software for optimal tuning (through genetic algorithms) of control structures for MIMO systems that allows, among other functions:

- Writing the MIMO process to be analyzed;
- Calculating the RGA to measure any interaction between the process variables;

- Selecting the desired control structure;
- Designing the decoupling for centralized control structures;
- Tuning the various PID controllers in several MIMO control structures through genetic algorithm-based optimization;
- Establishing fixed values, if desired, for the controllers' parameters, or limiting their range of variation;
- Displaying the response of the selected control structure graphically;
- Saving the results obtained in a data file for later analysis;
- Comparing the responses of the various structures tested both graphically and numerically (fitness functions).

B. Maintaining the Integrity of the Specifications

The GA used is the Augmented Lagrangian Genetic Algorithm (ALGA). This GA can solve a nonlinear optimization MIMO Control Structures

All the control structures included in the developed tool are based on PID controllers, as these types of controllers are used in most industrial applications due their robustness, the intuitive relationship between their parameters and the response of the system, and their flexibility.Decentralized Control is performed with two PID controllers. A controller is assigned for each loop of a MIMO.

To tune the PID controller parameters, an optimization algorithm based on an evolutionary strategy was used, specifically a GA. The GA or bio-inspired algorithms are stochastic global optimization strategies that attempt to emulate natural evolution. To find the optimal solution, operators such as crossover, mutation, and selectionon solutions (individuals) obtained in previous stages of the algorithm are used. A stochastic algorithm cannot guarantee optimal solutions, but the experience of other authors in various fields has shown that the solutions provided by these strategies are very close to the optimum, with a low computational cost compared to deterministic algorithms.
problem (NLP) with equality and inequality constraints and bounds in decision variables. The GA parameters, those which had given better performance, were configured to be the following.

Population: The algorithm begins by creating a random initial population using a uniform distribution. Its size is 20 individuals in each generation, but the number of elements (genetic code) that characterize each of them depends on the MIMO control strategy chosen.

Purposes of Assessment

Assessment is at the heart of the learning experience for students and serves many purposes:

- Promoting student learning by providing appropriate feedback on performance.
- Evaluating the extent to which students have achieved the desired learning outcomes of their programme or study-unit, in terms of knowledge, skills, understanding or abilities.
- Providing a mark or grade that enables a student's performance to be established and which may be used to make progress decisions.
- Providing important information for employers and higher education providers, indicating whether an individual has attained an appropriate level of achievement.
- Providing opportunities for staff to evaluate the effectiveness of teaching.

III. PREPARE YOUR PAPER BEFORE STYLING

A. Abbreviations and Acronyms

1. SIEM-Security Information and Event Management
2. NYT-New York Times
3. ECO-Economist
4. NPR-National Public Radio
5. SDSS-Sloan Digital Sky Survey
6. SIMD-Single Instruction Multiple Data
7. HDFS-Hadoop Distributed File System
8. CLR-Common Language Run Time
9. CTS- Common Type System
10. AVCA-Algorithms,Visualization,Context,and Automation
11. OLAP-Online Analytical Processing
12. XMLA-XML for Analysis

IV. USING THE TEMPLATE

A. Identify the Headings

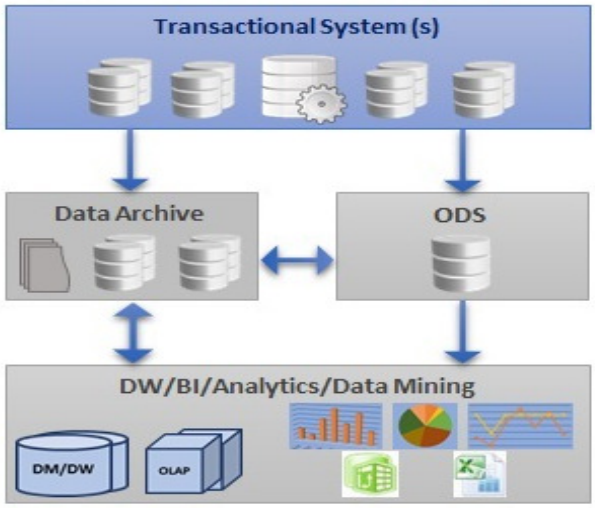
This phase is primarily concerned with user training, site preparation and file conversions. During the final testing, user acceptance is tested, followed by user training. Depending in the nature of the extensive user training may be system implementation.
The System implementation phase consists of the following steps:

- Testing the developed software with sample data.
- Correction of any errors if identified.
- Creating the files of the system with actual data.
- Making necessary changes to the system to find out errors.
- Training of user personnel.

The system has been tested with sample data, changes are made to the user requirements and run in parallel with the existing system to find out the discrepancies. The user has also been appraised how to run the system during the required.

After development and testing has been completed, implementation of the information system can begin. During system implementation, the project team should be brought back to full strength. During software development stage, project teams end to play passive role as the technical steps of program development and testing evolve. However, broad organizational representation, accomplished through the project team, is required to complete the system development cycle has offer very efficient yet simple implementation techniques for development of the project.

B. Figures and Tables



Architecture Diagram

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