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IDP Implementing Public Supposition by Furnishing Multi-source Data

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Abstract: ***This paper presents "Public Sentiments and Activities in Places" multi-source data analysis flow (PSAP) in an Informed Design Platform (IDP). In terms of key contributions, PSAP implements 1) an Interconnected Data Model (IDM) to manage multi-source data independently and integrally, 2) an efficient and effective data mining mechanism based on multi-dimension and multi-measure queries (MMQs), and 3) concurrent data processing cascades with Sentiments in Places Analysis Mechanism (SPAM) and Activities in Places Analysis Mechanism (APAM), to fuse social network data with other data on public sentiment and activity comprehensively. As proved by a holistic evaluation, both SPAM and APAM outperform compared methods. Specifically, SPAM improves its classification accuracy gradually and significantly from 72.37% to about 85% within 9 crowd-calibration cycles, and APAM with an ensemble classifier achieves the highest precision of 92.13%, which is approximately 13% higher than the second best method.***

Keywords: Interconnected Data Model, Multi dimension and Multi-measure Query (MMQ), Social Network Data Analysis,

I. INTRODUCTION

"Smart Objects" including ubiquitous physical objects and collaborative virtual objects, "Domain data" in four categories (i.e., open data, sensor data, social/crowd data and service system data) with 4V characteristics (big Volume, large Variety, high Velocity, and diverse Value), and "Smart Services" implementing innovative processes and sophisticated analytics to catalyze the SC development in six pillars, namely Smart Economy, Smart People, Smart Mobility, Smart Governance, Smart Living and Smart Environment, for an innovative, competitive, sustainable and harmonious city [1], [2], [3].

Along with such prevailing trend, an "Informed Design" concept is proposed in an on-going interdisciplinary "Liveable Places" project [1], [4] to develop an innovative approach for place design from empirical to evidential by harnessing geo-referenced "Big Data" generated from diverse "Objects" embedded in/around the place, and used by the public. Therefore, a novel knowledge-based design support system is required to address challenges emerged in a complex multi-source data processing flow, as 1) how to collect data from multiple sources with high scalability, 2) how to obtain good quality data by removing trivial contents, 3) how to manage heterogeneous multi-source data for an interlinked and interoperable data network, 4) how to extract key information from indirectly related contents for a comprehensive multi-source data fusion with high accuracy and performance, 5) how to support an efficient and effective data mining mechanism, and 6) how to present knowledge intuitively with a balance between usability and aesthetics [1], [5], [6], [7], [8].

The remainder of this paper is structured as below. In section 2, challenges in processing multi-source data, and related classification approaches are summarized respectively. Section 3 then introduces the PSAP in IDP. Afterwards, a holistic evaluation of these two analysis mechanisms, and place design insights derived from PSAP in our test bed are discussed in section 4. Finally, section 5 concludes the work and sketches the future.

II. LITERATURE SURVEY

1) *Linlin You, Bige Tuncer- Informed Design Platform: Interpreting "Big Data" to Adaptive Place Designs:* As a novel concept, "Informed Design" is proposed in a multidisciplinary project "Livable Places" in Singapore to innovate place design from empirical to evidential by harnessing geo-referenced "Big Data" for a responsive design. As a final delivery, an Informed Design Platform (IDP) is being implemented as a design support tool interpreting multi-source big data to adaptive urban designs for a more livable place. Due to the complexity in "Objects", which include physical devices and virtual services to generate space related data, "Data", which are massive and heterogenous to be interlinked and analyzed for valuable insights, and "Services", which integrate back-end and front-end service modules for innovative services, IDP collaborates them through dedicated mechanisms proposed by a Smart Service Orchestration Architecture (SSOA) to achieve a high scalability in data

collection, integration, analysis, and visualization. In this paper, the overall design and currently available services of IDP are presented.

2) *Michael Voglar, Johannes M. Schleicher, Christian Inzinger, Schahram Dustdar, Rajiv Ranjan- Migrating Smart City Applications to the Cloud:* smart city" has emerged as an umbrella term for the pervasive implementation of information and communication technologies (ICT) designed to improve various areas of today's cities. Areas of focus include citizen well-being, infrastructure, industry, and government. A smart city contains various heterogeneous types of infrastructure resources, such as traditional servers, cloud computing resources,4 and edge and emerging IoT devices. Tenants can decide what data can be shared or consumed. Tenants can describe with whom they want to share data, or who is specifically allowed to consume provided data.
3) *Nicola Ianuale, Duccio Schiavon, Enrico Capobianco-Smart Cities, Big Data, and Communities:* **Reasoning From the** Viewpoint of Attractors In what sense is a city smart? There are established entities defining this rich area of cross-disciplinary studies, and they refer to social, technical, economic, and political factors that keep evolving, thus offering opportunities for constant refinement of the concept of smart city. The emerging properties are mostly contextual, and affect urban data types and their capacity to form complex information systems. A well-known problem in computational analysis is the integration of lot of generated data. Data multitudes populate SCN and are modulated by the attractor dynamics that take place in such systems, originating from a a mix of passive data types. The decisions and actions that starting from individuals can be replicated at a larger community scale, represent a new human interaction dimension.
4) *Yu Zheng-Methodologies for Cross-Domain Data Fusion:* An overview Traditional data mining usually deals with data from single domain. In the big data era, we face a diversity of datasets from different sources in different domains. These datasets consist of multiple modalities, each of which has a different representation, distribution, scale, and density. How to unlock the power of knowledge from multiple disparate (but potentially connected) datasets is paramount in big data research, essentially distinguishing big data from traditional data mining tasks. The conventional data fusion, which is regarded as a part of data integration, is a process of integration of mul-tiple data.
5) *Petar Jovanovic, Oscar Romero, Alkis Simitsis, Alberto Abell´o- Incremental Consolidation of Data-Intensive Multi:* Flows-Business intelligence (BI) systems depend on efficient integration of disparate and often heterogeneous data. The integration of data is governed by data-intensive flows and is driven by a set of information requirements. Attributes being used, emitted or removed by an operation. Revenue of the sales for the parts ordered in the past year, per quarter.Net profit of the sales for the parts ordered in the last year, per quarter.
6) *Bin Cheng, Salvatore Longo, Flavio Cirillo, Martin Bauer, Ernoe Kovacs- Building a Big Data Platform for Smart Cities:* Experience and Lessons from Santander The Internet of Things (IoT) is now shaping our cities to make them more connected, convenient, and intelligent. However, this change will highly rely on extracted values and insights from the big data generated by our cities via sensors, devices, and human activities. External processing is more flexible and less limited thaninternal processing in terms of computation resource and programming language**.**
7) *Jia-Dong Zhang, Chi-Yin Chow- CRATS: An LDA-based Model for Jointly Mining Latent Communities, Regions, Activities, Topics, and Sentiments from Geosocial Network Data:* Geosocial networks like Yelp and Foursquare have been rapidly growing and accumulating plenty of data such as social links between users, user check-ins to venues, venue geographical locations, venue categories, and user textual comments on venues. The users are more closely linked to each other and share more common interests on venues within the same community than different communities. Topics are highly dependent on the underlying activities performed by users.
8) *Dan Puiu, Payam Barnaghi, Ralf Tönjes, Daniel Kümper,Muhammad Intizar ali, Alessandra Mileo- CityPulse:* Large Scale Data Analytics Framework for Smart Cities- The CityPulse framework integrates multimodal, mixed quality, uncertain and incomplete data to create reliable, dependable information and continuously adapts data processing techniques to meet the quality of information requirements from end users. Different than existing solutions that mainly offer unified views of the data, the CityPulse framework is also equipped with powerful data analytics modules that perform intelligent data aggregation, event detection, quality assessment, contextual filtering, and decision support. This paper presents the framework, describes its components, and demonstrates how they interact to support easy development of custom-made applications for citizens. The benefits and the effectiveness of the framework are demonstrated in a use-case scenario implementation presented in this paper.Data annotation and aggregation modules based on novel algorithms that adapts to the changes in the input sources in order to minimize information loss.

III. EXISTING SYSTEM

In order to harness multi-source data for an informed place design, this paper presents "Public Sentiments and Activities in Places" multi-source data analysis flow (PSAP) in an Informed Design Platform (IDP).
The intelligence of Smart Cities (SC) is represented by its ability in collecting, managing, integrating, analyzing and mining multi-source data for valuable insights.

A. Conventional Algorithms

It involves transforming plaintext messages into cipher text messages that are to be decrypted only by the intended receiver.
These encryption algorithms are used in practice due to their efficiency in encrypting/decrypting but these algorithms have vulnerabilities.

1) Disadvantages of Existing System

a) It has taken decades to develop efficient algorithms for its solution.
b) A wide variety of classical optimization techniques such as non-linear programming.

IV. PROPOSED SYSTEM

Informed Design" concept is proposed in an on-going interdisciplinary "Liveable Places" project to develop an innovative approach for place design from empirical to evidential by harnessing geo-referenced "Big Data" generated from diverse "Objects" embedded in/around the place, and used by the public. In general, many scholars study detection features and training algorithms in the first approach for optimal performance.

A. Training Algorithm

It is the machine learning task of learning a function that maps an input to an output based on example input-output pairs.
A supervised learning algorithm analyzes the training data and produces an inferred function, which can be used for mapping new examples.

1) Advantages of Proposed System

a) It including requiring less formal statistical training.
b) It ability to implicitly detect complex nonlinear relationships between dependent and independent variables

V. ARCHITECTURE DIAGRAM

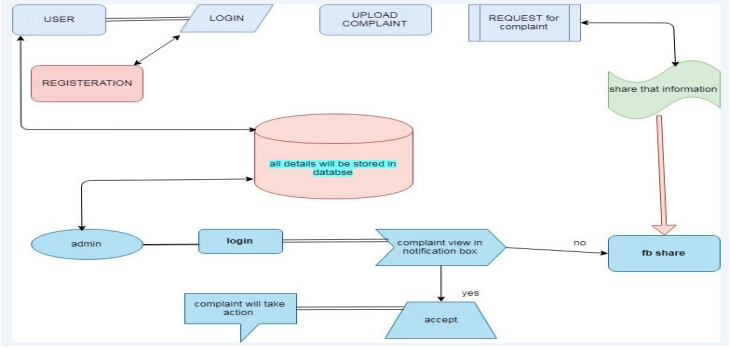

Fig.4. System Architecture

In terms of key contributions, PSAP implements an Interconnected Data Model (IDM) to manage multi-source data independently and integrally, an efficient and effective data mining mechanism based on multi-dimension and multi-measure queries (MMQs), and concurrent data processing cascades with Sentiments in Places Analysis Mechanism (SPAM) and Activities in Places Analysis Mechanism (APAM)
1) a core data model is missing to manage multi-source data uniformly, 2) key information in indirectly related contents is not properly extracted to fuse multi-source data holistically, 3) a common data mining mechanism is not provided to simplify and accelerate the insight deriving process efficiently and effectively, and 4) no dedicated visualizations are designed to support the interpretation concisely and intuitively.

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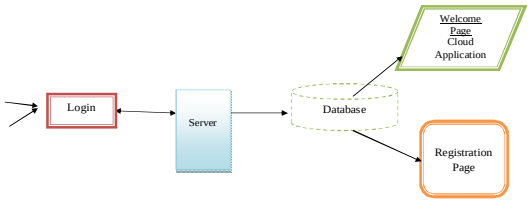
VI. MODULE DESCRIPTION

A. User Interface Design

This is the first module of our project. The important role for the user is to move login window to user window. This module has created for the security purpose. In this login page we have to enter login user id and password. It will check username and password is match or not (valid user id and valid password). If we enter any invalid username or password we can't enter into login window to user window it will shows error message. So we are preventing from unauthorized user entering into the login window to user window. It will provide a good security for our project. So server contain user id and password server also check the authentication of the user. It well improves the security and preventing from unauthorized user enters into the network. In our project we are using JSP for creating design.

➢ **USER INTERFACE DESIGN:**



B. User Complaint Upload

This is the second module of our project. The user will upload the complaint.

C. User Send Request

This is the Third module in our project, here symbolizes a unit of work performed within a database management system (or similar system) against a database, and treated in a coherent and reliable way independent of other transactions.

D. Admin Notification

In the first and second module represents the user how to upload their complaint in the web portal. Now this is the third module of the project, Admin notification. Once the user upload their complaint in web portal then the admin gets notification.

E. Admin Complaint View

This is the fifth module of this project, admin complaint view. After gets the notification, the admin will see those complaints and cross check the complaint and the user information.

F. Social Media Sharing

This is the last module of this project. Admin have some time duration to take the action. If suppose the police department will not take any ingestion within the time, the compliant will share immediately on the social media like facebook, twitter etc.,

VII.CONCLUSION

The method presented in this paper is an order to harness multi-source data for an informed place design, this paper presents "Public Sentiments and Activities in Places" multi-source data analysis flow (PSAP) in an Informed Design Platform (IDP).The proposed method Informed Design" concept is proposed in an on-going interdisciplinary "Liveable Places" project to develop an innovative approach for place design from empirical to evidential by harnessing geo-referenced "Big Data" generated from diverse "Objects" embedded in/around the place, and used by the public.

VIII. FUTURE ENHANCEMENT

The keyword weight adjusting process only considers the pairwise relations between the keywords, and the effect of graph-based methods can be further studied. In our method, the time complexity of the similarity metric learning is high, which could be improved in the following work, e.g., using a purely online or parallel version with acceptable loss of precision.

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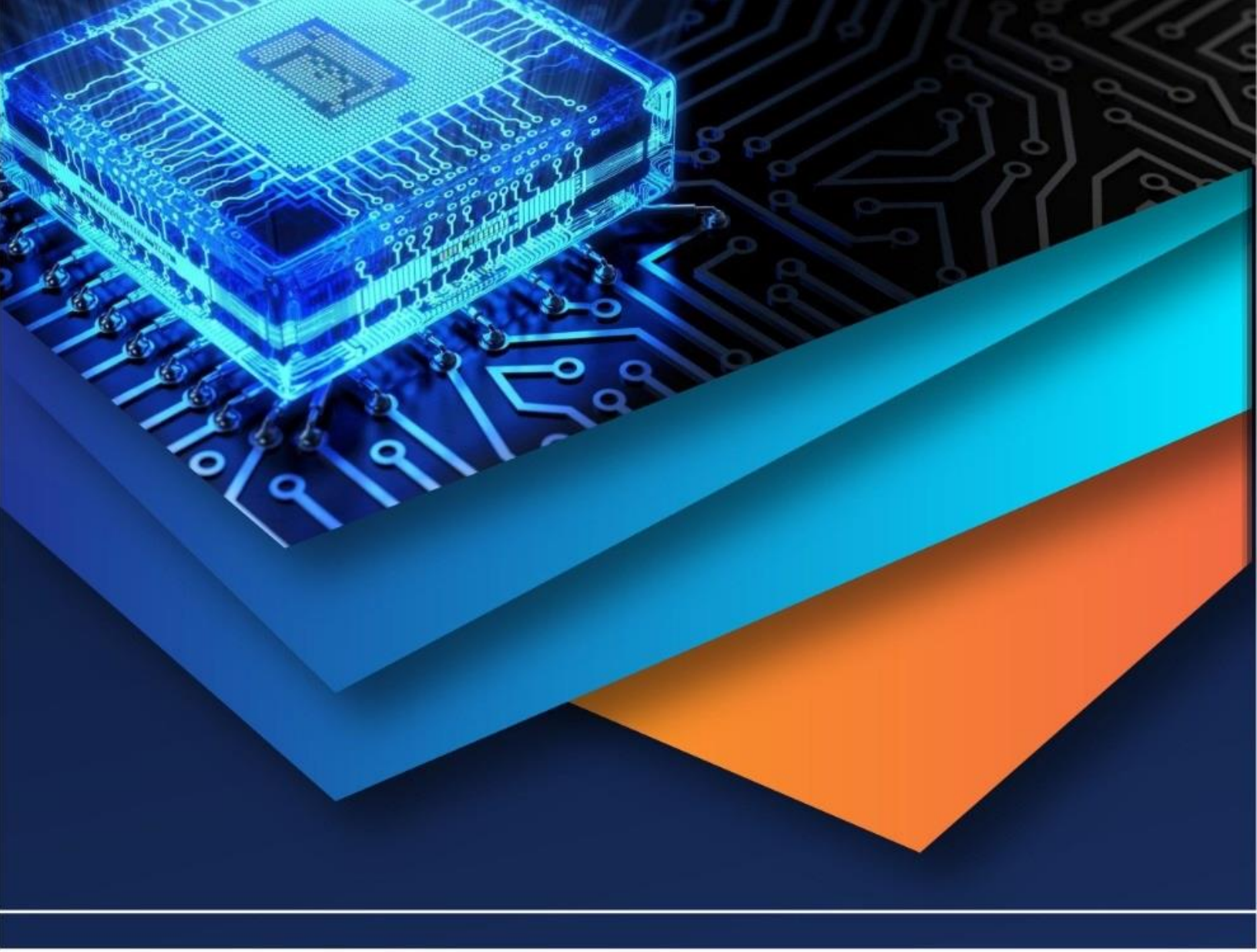

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