IEEE Transactions on Emerging Topics in Computational Intelligence
Special Issue on Data Driven Computational Intelligence for e-Governance, Socio-Political and Economic Systems

INTRODUCTION

E-Governance is the application of electronic, information and communication technologies in order to facilitate public services, support government administration and democratic processes, and strengthen the relations among citizens, civil society and the private sector. Ultimately e-governance role is to utilize digital tools and models in order to promote the interaction between three key partners of modern societies: government, citizens and business. Improving and optimising the interaction between these structural elements of modern societies, results in political, social and economic stability and prosperity.

More specifically e-government aims at:

- *Creating a better business environment*. By utilizing modern tools and digital platforms e-government infrastructures will achieve reduction of unnecessary redundancies in procedures, deliver their services instantly and more effectively. This kind of economic environment is a fertile ground for the development of new businesses and is also highly attractive to potential investments.
- *Promoting economic stability and growth though modelling of financial markets*. Understand patterns associated with growth affirming behaviours and simulating political intervention strategies to create positive and stable economic equilibriums.
- *Customers online, not in line*. Public goods and services are offered to citizens without the intervention of public workers and officials. This results in the delivery of better and quicker services.
- *Strengthening good governance and broadening public participation*. Adapting ICT techniques, which emphasize on enhancing transparency and accountability of government's management and operation will result in establishing trust between government and citizens promoting the active engagement of the citizens in the decision-making processes of the government.
- *Improving the productivity and efficiency of government agencies*. Effective e-governance systems and platforms allow for effective communication among different government services and aid in the reduction of unnecessary workload for delivering a public service and product.
- *Improving the quality of life for disadvantaged communities*. The application of effective e-governance tools and policies will grant access to social goods and services for groups and regions, which under a traditional method of governance would be underprivileged (due to living in a remote location, disability or other barriers).

Nowadays there is a big data revolution unravelling around us and there is a need to build applications for harvesting and analysing vast amounts of data generated from different sources such as transactions of citizens with government services, human interaction with social networks, the use of interconnected smart electronic devices in the context of smart pervasive environments and from our growing reliance on mobile technologies and applications. While this data revolution is progressing there have been significant breakthroughs in the development of nature inspired Computational Intelligence (CI) techniques which can allow for the utilization of this vast wealth of information by revealing hidden patters and relationships, handling the various sources of uncertainties and modelling stochastic and complex real-world processes to build effective tools for e-government applications. Many political, social and economic human systems can be understood through bottom up computational methodologies such as agent based modelling for decomposing these systems into their various actors and components, modelling their characteristics, and interaction behaviours. These can be driven by various real-world data sources fraught with uncertainties pertaining to human decision making, knowledge perception and agreement models that need to be handled based on fuzzy and probabilistic representation and reasoning methodologies. Top down machine learning techniques such deep learning approaches can be used with agent based models to emulate the dynamics of these simulation models by providing meta models to emulate complex patterns and correlations in historical data that can be used for empirical validation and estimation. Advances in

evolutionary techniques can further be developed for assessing and optimizing e-governance policies and strategies in terms of simulating their impact on aspects such as labour and employability modelling complex negotiation processes and improving the syntactic and semantic and search capabilities of evolutionary algorithms for handling multifaceted real-world problems. CI and machine learning approaches have further been applied to understand population mobility, economic growth, social behaviour, human sentiment, health, security and political risk, education, welfare and geopolitics and environmental concerns.

TOPIC AREAS

CI tools and applications can aid in the delivery of enhanced services promoting the interactions between government, citizens and businesses resulting in a prosperous economic and social environment. At the same time through the delivery of intelligently tailored services by employing transparent interpretable procedures and making social services and goods accessible to everyone, citizens themselves can be motivated to become more responsible and active participants in promoting positive social and economic changes. The aim of this Special Issue (SI) is to develop novel computational tools and design systems to exploit the vast amounts of data generated continuously through the interaction of citizens with the government, and the surrounding environment, in order to promote and realize the vision of optimized e-governance services. The scope of this SI includes, but is not limited to:

- Development of simulation models and computational governance mechanisms, which can provide assistance in decision-making and in shaping policies and strategies.
- Integration of assistive technologies, which can be utilized to get accurate and immediate feedback on the impact of applying new policies. This will allow for policies to be re-designed and for actions to be undertaken, so as correcting ill-designed government programs.
- Application of sentiment analysis techniques in Big Data generated by the interaction of modern citizens with Social networks, and from the interaction of citizens with social services and governance systems. This approach will reveal the needs of the public and will allow government to design tailored services and goods to meet these needs.
- Designing platforms and digital tools, which promote the participation of citizens for shaping e.g., governments' decisions. This includes the development of systems and interfaces aiming to engage and gain the trust of different demographics groups of citizens, such as young adults, the elderly or people with special needs to participate actively in political processes.
- Application of state of the art computational intelligence approaches for analysing data generated from the various sources to visualise the hidden patterns pertaining to different aspects of the social political, fiscal and economic behaviours.
- Intelligent approaches for managing, storing and analysing vast amounts of data containing sensitive personal or classified government information, while accounting for contextual security threats, trust and ethics, the robust handling and storage of data and solution concerning disaster recovery.

PAPER SUBMISSION

The special issue welcomes high quality original contributions, which can take the form of full or short papers. For paper submission and formatting guidelines please click here.

IMPORTANT DATES

1st March 2017: Submission of Manuscripts
2nd May 2017: Notification of Review Results (R1)
4th July 2017: Submission of Revised Manuscripts
1st August 2017: Notification of Final Review Results (R2)
29th August 2017: Submission of Final Manuscripts
December 2017: Proposed Special Issue Publication

GUEST EDITORS

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