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Judul Jurnal Ilmiah (Artikel)	:	Multi-period Quadratic Programming Model for Sewon-Bantul Facultative Ponds Optimization Penulis : Sunarsih , Sutrisno,			
Jumlah Penulis	:	2 orang			
Status Pengusul :	:	Penulis pertama/ penulis kedua / penulis korespondensi			
Identitas Jurnal Ilmiah	:	a.	Nama Jurnal	:	Advances in Science, Technology and Engineering Systems Journal
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	:	c.	Volume, nomor, bulan tahun	:	Vol. 4, No. 6, 397-401 December (2019)
	:	d.	Penerbit	:	ASTESJ-Technology publishes
	:	e.	DOI artikel (jika ada)	:	https://dx.doi.org/10.25046/aj040648
	:	f.	Alamat web jurnal	:	
URL JURNAL : https://astesj.com/v04/i06/p50/					
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Reviewer 2



Prof. Dr. Heri Sutanto, SSi., MSi.
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Unit kerja : Departemen Fisika, FSM UNDIP

Semarang, 9 April 2020

Reviewer 1



Prof. Drs. Mustafid, M.Eng., Ph.D.
NIP. 195505281980031002

Unit kerja : Departemen Statistika, FSM UNDIP

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NIP. 195505281980031002
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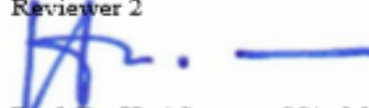
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Reviewer 2



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Volume 4, Issue 6, 2019, Pages 397-401Multi-period Quadratic Programming Model for Sewon-Bantul Facultative Ponds Optimization (Article) [\(Open Access\)](#)

Sunarsih Sutrisno

Department of Mathematics, Diponegoro University, 50275, Indonesia

Abstract

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Treatment plants have been developed in many countries to handle wastewater, therefore, many pieces of researches have been conducted in order to optimize the outcomes. In this article, a mathematical optimization model was developed using quadratic programming approach to optimize the pollutant degradation at the domestic wastewater facultative stabilization ponds. The data used in this research were obtained from Sewon, Bantul wastewater treatment plant (WWTP) located in Yogyakarta, Indonesia. The proposed mathematical optimization model was formulated by maximizing the total amount of domestic wastewater processed in four facultative ponds along with the efficiency index value of the biological oxygen demand (BOD) degradation. The corresponding quadratic programming problem was solved in LINGO 18.0 optimization tool by using the generalized reduced gradient algorithm. The result led to the optimal decision which is the value of the domestic wastewater processed in each facultative pond. © 2019 ASTES Publishers. All rights reserved.

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Q²YouTube: Quantitative and Qualitative Information Analysis based Influencer-aware YouTube Channel Ranking Scheme

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ABSTRACT

With the development of big data, artificial intelligence and deep learning, various social information networks are becoming exponentially intelligent. Of all the various social networks, YouTube is so popular that it is called the YouTube era. Not only video viewers, but also actual video producers, influencer youtubers, are increasing, allowing individuals as well as operators to use and market contents on various topics. As the number of users and contents increases, the choice of information increases, but it is more difficult for individual and business owners to select information that meets their needs. Therefore, this study aims to analyze the channel of the subject that the user needs from various angles and provide the ranking of the channel to individuals and businesses. We crawl the channels and measure the average awareness and influencer youtuber of channels and channel videos by analyzing the qualitative data of quantitative data and comments which are statistical information. As a final case study, we recommend the English learning channel to individual users based on numerical data statistics and emotional analysis results to show the maximum of flipped learning effect regardless of time and space. Plus, we prove the maximum of the effectiveness of marketing by influencer channel which is influential to operators in the medium and long term.

1 Introduction

There are about 3.4 billion people using social media (SNS) among 7.6 billion people worldwide. Compared with the year 2018, about 280 million people started the SNS within a year. Especially with the development of big data, artificial intelligence and deep learning, various social information networks are becoming exponentially intelligent. One of them, YouTube is the most famous social platform for satisfying various objects such as users as well as businesses on top of the recommender system. However, as the development of technology and the emergence of big data have caused the exponential growth of YouTube channels, users are having difficulties in selecting personalized videos. In other words, users have difficulty in selecting a channel on top of the basic recommendation of YouTube, and they spend additional time searching for a good channel or comparing contents directly [1]–[4]. In aspects of the business operator, the new influencer marketing on top of YouTube data analysis is also emerging as a new and successful marketing strategy. Influencers are

influential individuals, which can include the general public as well as entertainers and SNS stars. Using the recommendation on top of the influencer aware YouTube data analysis, the general public can easily consume the contents and at the same time be satisfied with the content.

As the application case studies based on influencer aware YouTube data analysis, in this paper we introduce the possibility of the flipped learning maximization of user education as well as business marketing satisfaction.

Regardless of age, interest in lifelong education has increased in various fields such as English and Chinese, and various contents based on smartphone such as internet lecture, radio, and learning application are attracting attention. As the number of smartphone users increases, demand for online content is growing more than offline. However, since the above-mentioned online service requires the motivation of the user to voluntarily learn, the more the time passes, the less motivated and the less interested in learning.

The popularity of the YouTube-based beyond time and space learning is increasing due to the characteristics of these

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A Proposal of TCP Fairness Control Method for Two-Host Concurrent Communications in Elastic WLAN System Using Raspberry Pi Access-Point

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ABSTRACT

The IEEE802.11n based Wireless Local Area Networks (WLANs) have been extensively deployed due to the flexible coverage, the easy installation, and the lower cost. To reduce the energy consumption while increasing the performance, the elastic WLAN system has been studied, such that it can dynamically change the network configuration according to traffic demands. As well, the test-bed has been implemented and for the access point (AP), Raspberry Pi is used as a portable, energy conservation, and powerful computing device. Our test-bed measurements with a single AP of two concurrently communicating hosts found the unfairness throughput results, due to the TCP windows size became different among them. To overcome this drawback, in this paper, we propose the TCP fairness control method for two concurrently communicating hosts in the elastic WLAN system. By controlling the delay at the packet transmission, the slower host will obtain more transmission opportunities than a faster host. The delay is firstly calculated by the received signal strength (RSS) from every host. After that, the delay is controlled by the PI controller to balance the both throughputs. For evaluations, we execute the proposal in the elastic WLAN system test-bed and carry out extensive measurements, where the TCP throughput fairness is achieved.

1 Introduction

The IEEE802.11n based *Wireless Local Area Networks (WLANs)* have been widely adopted around the world due to the characteristics of the flexible coverage, the simple installation, and the low cost [2]. WLAN provides the Internet access by wireless medium and offers a lot of benefits such as mobility, reliability, and portability. Hence the popularity of WLAN is increasing in government offices, private companies, organizations for accessing the internet.

In WLAN, hosts are mostly non-uniformly located [3], and communicating hosts or traffics tends to fluctuate unpredictably [4, 5] according to the period time and in a week. Furthermore, conditions of network devices and communication links may be influenced by certain factors, such as device failures, power shortages, weather changes, or bandwidth controlled by their authorities [6].

Under such circumstances, we have examined the *elastic WLAN system* that dynamically optimizes the network configuration based on demands in a network, to reduce the energy consumption during

the time to improve the performance [7, 8]. In addition, we have developed the *elastic WLAN system test-bed* using *Raspberry Pi AP*. *Raspberry Pi* is a card-size, single-board computer that can solve a variety of practical problems requiring computation or networking abilities [9], additionally, it is equipped with the built-in wireless network interface (NIC) supporting IEEE802.11n.

In WLAN, the *fairness* of the throughput quality among the hosts is necessary to ensure the fair *quality of services (QoS)* for the users [10]. Hence, fairness problems in WLAN have been explored extensively [11]-[14]. Since a large number of network applications in the Internet adopt the *transmission control protocol (TCP)*, the TCP fairness is exceedingly critical.

Nevertheless, our preliminary measurements using the elastic WLAN system test-bed have revealed that the TCP throughput is not superior among the two concurrently communicating hosts associated with the same AP when they are located at different positions from the AP. It is assumed that this unfairness was caused by differences in the *TCP window size* and the *modulation and coding*

*Corresponding Author: Nobuo Funabiki, Dep. of Electrical and Communication Engineering, Okayama University, Okayama, Japan, Email: funabiki@okayama-u.ac.jp
This paper is an extension of work originally presented in 2nd International Conference on Communication Engineering and Technology (ICCET 2019) [1].

An ML-optimized dRRM Solution for IEEE 802.11 Enterprise Wlan Networks

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Department of Electrical Engineering, Mohammadia School of Engineers, Mohammed V University In Rabat, Morocco

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Wireless local area networks

ABSTRACT

In an enterprise Wifi network, indoor and dense, co-channel interference is a major issue. Wifi controllers help tackle this problem thanks to radio resource management (RRM). RRM is a fundamental building block of any controller functional architecture. One aim of RRM is to process the radio plan such as to maximize the overall network transmit opportunity. In this work, we present our dynamic RRM (dRRM), WLCx, solution in contrast to other research and vendors' solutions. We build our solution model on a novel per-beam coverage representation approach. The idea of WLCx is to allow more control over the architecture design aspects and recommendations. This dynamization of RRM comes at a price in terms of time and resources consumption. To improve the scalability of our solution, we have introduced a Machine Learning (ML)-based optimization. Our ML-optimized dRRM solution, M-WLCx, achieves almost 79.77% time reduction in comparison with the basic WLCx solution.

1 Introduction

In an enterprise Wlan network, the controller is the central component of the network architecture. The controller manages all the Wifi access points (APs) and provides their radio configuration: channel and transmit power. The controller plays another important role in Wlan integration to other parts of the enterprise network: Local Area Network (LAN), Wide Area Network (WAN), internet, and Datacenter Network (DCN), where application servers reside.

Processing the radio plan is the task of RRM functional architecture block of the controller. It helps minimize co-channel interference and efficient use by APs of the spectrum, thus, optimizing the latter transmit opportunity. Then, how does RRM decide on what channel an access point should use, and at what transmit power?

To build an efficient radio plan that maximizes the network capacity, the controller needs data from APs, Wifi clients or devices (WDs), wired network devices, and servers. This data is what pertains to the quality of the radio interface and client overall experience when accessing the services. However, this information is not sufficient to hint on the whole coverage quality such as the interference at any point in the coverage area. It is only limited to some coverage points, APs

and WDs, that are able to monitor the radio interface and report real radio measurements.

To overcome this limitation, either we place sensors everywhere, which is not feasible in an enterprise network (economically and technologically), or model the coverage area. The modelization effort could be done in a laboratory context, by vendors for example, to provide strict recommendations that customers may follow to build their networks. This approach works in common situations. But it requires a lot of engineering effort and monitoring to maintain the network at an optimal condition. In some situations, it may just not work or false the transmit opportunity estimation. For the rest of this work, this approach is referred to as static RRM (sRRM). The third alternative is to allow the controller to do more complex real-time processing without any or very few preconfigured settings and find out the suitable RRM configuration to apply. This approach is the focus of this study and will be referenced as dynamic RRM, or dRRM.

A controller, that supports dRRM, does not rely on preconfigured settings in hardware or software to decide on how to modify the radio plan to meet the utility function. In dRRM, even the system parameters are processed to optimize the network capacity, which is different from sRRM. However, the advantage of dRRM comes at a high price in terms of time,

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The Relationship of Coalition on Employee Spiritual Engagement: Interplay of Organisational Politics

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ABSTRACT

The objective of the study was to establish the relationship between coalition and employee spiritual engagement. The research was quantitative, and data was administered and retrieved from employees at the selected private radio firms. Content validity was utilised to ascertain the validity of the instrument, and the reliability of the instrument was established using Cronbach's alpha coefficient. Kendall's tau_b correlation was used to show the result of the bivariate relationship between coalition and employee spiritual engagement ($p > 0.05$); hence, we accepted the null hypothesis. To know how much variance in employee spiritual engagement can be clarified by coalition, a simple linear regression was performed; with a result of 0.1 (percent), it was evidenced that coalition had no effect on employee spiritual engagement. The finding of the study showed that there is no statistical relationship between coalition and employee spiritual engagement. The result of this study also bears practical implications; executives should understand that organisations cannot achieve a zero-level coalition activity. Although this behaviour via the results does not possess a statistical relationship, executives should articulate its optimized use within acceptable terms.

1. Introduction

Politics has existed for centuries; however, the logical investigation of politics in organisation merely started taking shape about thirty years ago [1]. [2] posits that the purpose behind the paucity of study on organisational politics is likened to the focused study of politics in the regions of sociology, social psychology, and political science. During the late 1970s and mid-1980s, milestone works emerged that made way for the contemporary investigation of organisational politics [1, 3-5]; though the presence of politics inside organizations is known, the quest for a superior comprehension of how it affects employee engagement is developing as a significant challenge for executives in the 21st century.

Organisational politics from a global perspective create irresolute reactions since employees take a juxtapose stand on the

concept; contingent upon the specific point of view they have, and it is critical to state that the level of organisational politics varies amongst organizations. The fact remains that organisations have elements of micro and macro political activities that influence their activities [6, 7].

Organisational politics is perceived as either a symptom of social influence processes intentionally executed to achieve short-term or long-term advantages for the organisation or a self-serving activity that conflicts with the organisational objectives [8, 9]. Organisational politics is also seen as the management of influence to achieve goals not authorised by the organisation or to achieve authorised goals through non-authorised influence; via controlling information channels, managing impression, and forming a coalition [1, 10, 9]. [11] observes that organisational politics are significant since it gives a comprehension of the informal procedures of conflicts and co-operation in organisations, and their impact on the employees' engagement.

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