

# تحقیقی و تنقیدی زاویے

اعجاز حسین شاہ

آزاد بک و پرنٹرز



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# غالب اور اقبال کی فکری و لسانی قربتیں

— محمد آصف ملک علی

شعبہ اُردو جموں یونیورسٹی

یہ بات بہت حد تک درست ہے کہ غالب اور اقبال کے فکری دھارے مختلف سمتوں میں بہتے ہیں، اقبال کا اکثر کلام جہاں نورِ اسلام سے منور ہے وہیں غالب کسی حد تک آزاد ادراک کے شاعر ہیں۔ اقبال نے ایک منظم نظامِ فکر کے تناظر میں اور ایک مخصوص مقصد کے تحت شعر کہے ہیں جب کہ غالب نے مضمون آفرینی، معنی آفرینی اور اثر آفرینی کے ساتھ ہی ساتھ حسنِ بیان اور لسانی باریکیوں کو مالدار بنانے میں اپنا سارا فنی اور لسانی زور بروئے کار لایا ہے۔ اس کے باوجود غالب اور اقبال دونوں بعض مقامات پر مشترکہ فکری پگھٹ سے ہم پیالہ معلوم ہوتے ہیں، اقبال کو غالب سے اکثر مقامات پر فکری دوریاں ہیں لیکن یہاں موضوعِ بحث اقبال کی غالب سے قربتیں ذکر کرنا مقصود ہے، اس لیے میں یہاں پر صرف غالب اور اقبال کی فکری قربتیں بیان کر رہا ہوں۔ اس بات کا خیال رکھنا بہت ہی ضروری ہے کہ اقبال کو غالب سے جو فکری قربتیں ہیں۔ وہ اکثر ولایت سے اعلا تعلیم حاصل کر کے واپس ہندوستان آنے سے پہلے تک ہیں (یعنی اقبال کے ابتدائی کلام بانگِ درا حصہ اول اور دوم میں ۱۹۰۸ء سے قبل اقبال روایتی اور کلاسیکی شاعری کی تکنیک،



# TEHQEEQI -O- TANQEEDI ZAWAIYE

by  
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Tomoyoshi Nozaki · Alok Bhattacharya  
*Editors*

# Amebiasis

Biology and Pathogenesis of  
Entamoeba



Tomoyoshi Nozaki • Alok Bhattacharya  
Editors

# Amebiasis

Biology and Pathogenesis of Entamoeba

 Springer

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# Chapter 13

## Signaling Pathways in *Entamoeba histolytica*

Saima Aslam, M. Shahid Mansuri, and Alok Bhattacharya

**Abstract** A variety of functions in eukaryotes, such as cell migration, contraction, secretion, proliferation, differentiation, and exocytosis, are initiated and sustained by signaling processes. Most of the signalling pathways have been described in detail for many eukaryotic systems, particularly for mammalian systems. Signaling pathways quite often consist of cell-surface receptors, intracellular components that function as adaptors and transducers including those that generate second messengers leading to either alteration in gene expression or cytoskeleton dynamics. We have rudimentary knowledge about the organization of signaling systems in *Entamoeba histolytica* and the mechanisms by which initiation is coupled with functional readout, in spite of identification of a number of molecules known to participate in these pathways in other organisms. In this chapter we provide a summary of our current understanding on calcium and G-protein signaling pathways of *E. histolytica* and their role in different biological processes.

### 13.1 Introduction

A major feature of amebiasis is the absence of an overt invasive form of the disease in a large number of infected individuals. It is generally estimated that more than 90 % of the infected individuals are asymptomatic and it is not clear why some individuals develop invasive amebiasis. Moreover, only a small fraction of patients display extraintestinal infection, particularly liver abscess. It is believed that both parasitic and host factors have important roles in deciding the fate of infection, varying from no symptoms to extraintestinal invasion. The intricate relationship between host and parasite is governed by their various inherent signaling systems. The gut microbiome is also known to influence the behavior of *E. histolytica*, although there are a few studies that indicate the importance of this relationship in amoebic

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Mohammad Saghir Khan · Almas Zaidi  
**Javed Musarrat** *Editors*

# Phosphate Solubilizing Microorganisms

Principles and Application of Microphos  
Technology

*Editors*

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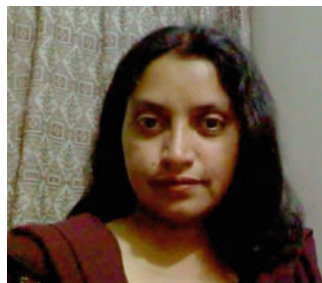


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# بلغ العلیٰ بکمال

(نعتیہ مجموعہ)

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بلغ العلیٰ بکمال

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بکمال

بکمال

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**BALAGHAL ULA BE KAMAALEHI**  
(Collection of Urdu Poetry)

by

**Dr. Shams Kamal Anjum**

”بلغ العلیٰ بکمال“ کے مطالعہ سے اندازہ کیا جاسکتا ہے کہ شمس کمال انجم نے نعت گوئی کا آغاز کتنی گہری عقیدت سے کیا ہے۔ ذات پاک نبوی ہو یا دیار نبوی وہ ان کے عشق میں سرشار ہیں۔ چونکہ انھوں نے دیار پاک میں خاصا طویل قیام کیا ہے اس لیے ہجر کی شدت بھی ویسی ہی شدید ہے اور وہ بھر مدینہ جانا چاہتے ہیں وہاں سے واپس آنا نہیں چاہتے۔ بلکہ کہتے ہیں کہ اگر مدینہ میں مجھے موت نہ آ سکے تو قضا مجھے یہاں سے مدینہ لے جائے اور وہاں میں اپنی جان جاں آفریں کے سپرد کروں۔ کتنا شدید جذبہ ہے! کیسی بے پناہ محبت ہے! کیسی والہانہ عقیدت ہے اور کیسی قابل رشک تمنا ہے۔ ان کی نعت گوئی کا یہی انداز قاری کو بھی مسحور کرتا ہے اور وہ بھی اس محرم میں ڈوب کر رہ جاتا ہے۔ اور ان کی طرح ہی مدینہ کی فرقت میں اس کا دل بے چین ہو جاتا ہے۔ ہمیں شمس کی نعت گوئی سے بڑی امیدیں ہیں۔ جب آغاز ایسا والہانہ اور بھرپور ہے تو جب ان کا فن نصف النہار پر پہنچے گا تو اس کا کیا عالم ہوگا۔

(امین احمد نقوی)

شمس کمال انجم نے اپنی پوری نعتیہ شاعری میں کوشش کی ہے کہ وہ اپنے ذاتی کوائف اور احوال کو رسول پاک ﷺ اور ان کی سیرت سے ہم آمیز و ہم آہنگ کریں۔ اس لیے ان کے اس نعتیہ مجموعے میں ایسے اشعار بہ کثرت ملیں گے جن میں خود ان کا احساس پوری شدت کے ساتھ گھلا ملا نظر آتا ہے۔ شمس نے ایسے اشعار بہت کہے ہیں جن کا تعلق پوری طرح ان کے ذاتی احساس سے ہے۔ اسے یوں بھی سمجھ سکتے ہیں کہ وہ نعت میں اپنی تخلیقیت سے زیادہ عقیدت اور عبادت کے عناصر سمونے کی سوچتے ہیں۔ شمس کمال انجم کی نعتیہ شاعری اور شمس رسول ﷺ میں ڈوبی ہوئی ان کی تخلیقی کاوشوں کی داد دے کر مجھے خود کو بھی اس سفر کا حصہ بنانا تھا کہ میں بھی حوض کوثر پر شمس کے پیچھے چند جرعات کی خاطر اپنا اوک بڑھا سکوں۔ اللہ کرے یہ مجموعہ نعت اردو حلقوں میں تخلیقی اعتبار سے مقبول و معروف ہو اور شاعر کے لیے ذریعہ نجات بھی۔

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## JADEED ARABI ADAB

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☆ آپ کی کتاب ”جدید عربی ادب“ کچھ دن پہلے ملی تھی، میں نے اسے جگہ جگہ سے دیکھا اور لطف اندوز ہوا۔ آپ نے شوقی ضیف کے حالات اور کارناموں پر اپنی مختصر دیباچہ لکھ کر کتاب کی قدر و قیمت میں اضافہ کر دیا ہے۔ کتاب میں جدید مصری ادب خاص کر مصری شاعری کے بارے میں معتبر معلومات یکجا ہیں اور یہ بات بھی بہت عمدہ ہے کہ مصر پر گزشتہ دو سو برس سے جو مغربی اثرات مرتب ہوئے رہے ہیں ان کا بھی ذکر تھوڑا بہت کتاب میں موجود ہے۔

شمس الرحمان فاروقی

☆ ”جدید عربی ادب“ کے مطالعے سے ایک بڑی زبان کے جدید ادب کے بہت سے خدوخال نمایاں ہوئے۔ اس کتاب میں ادیبوں اور شاعروں کے حالات زندگی ہی نہیں ہیں بلکہ ان کی تحریروں اور تصانیف کا نہایت عمدہ تنقیدی جائزہ بھی ہے۔ اردو میں ادب کی جو تاریخیں شائع ہوئی ہیں شاید کوئی اس سچ سے نہیں لکھی گئی۔ کاش ہمارے یہاں کوئی عالم اس انداز کی جدید اردو ادب کی تاریخ لکھ سکا۔ عرض مترجم کے عنوان سے آپ کا دیباچہ بھی عالمانہ ہے۔ **مظہر امام**

☆ کسی دوسری زبان کی روح کو ایک اور روح دینا مترجم کے وہ اوصاف ہیں جو صرف اور صرف اللہ ہی کی صفات ہیں۔ تاہم عظیم ترین خالق نے خود کو ذہن قلم کاروں میں خلق بھی کیا ہے اور یہ عمل صدیوں سے جاری ہے۔ ازل سے ابد تک یہی کارنامی حقیقت شمس کمال انجم کو بھی ودیعت ہوئی ہے۔

افتخار امام صدیقی

☆ جدید عربی ادب کے مطالعے سے اندازہ ہوا کہ آپ نے بہت رواں، صاف اور سادہ زبان میں ترجمہ کا فریضہ ادا کیا ہے۔ اور بلاشبہ آپ کو معیاری اور بے عیب زبان لکھنے پر قدرت حاصل ہے۔

☆ جدید عربی ادب کے مطالعے سے شمس کمال انجم کی عربی اور اردو دونوں زبانوں میں فہم و افہام تفہیم کی یکساں صلاحیت اور با محاورہ، سلیس و رواں ترجمہ پر قدرت کا اندازہ ہوا۔

☆ ڈاکٹر شمس کمال انجم مستحق تحریک ہیں کہ انھوں نے جدید عربی ادب کی سب سے اہم کتاب الادب العربی المعاصر فی مصر کا ترجمہ کیا اور ہمارے طلبہ و اساتذہ کے لیے آسانی فراہم کر دی کہ تقریباً تمام جامعات میں یہ کتاب مرتب کی حیثیت رکھتی ہے۔

☆ یہ کتاب اس لیے اہم ہے کہ یہ سو سال کی تاریخ ہے اور جدید عربی ادب کے ادا و شعر کا اس میں کافی حد تک احاطہ کیا گیا ہے۔

☆ اردو زبان میں اس کتاب کی آمد ایک Event ہے۔ اس کے مطالعے کے دوران یہ محسوس نہیں ہوتا کہ اس کا مواد باہر (عربی) سے اردو میں داخل ہوا ہے۔

☆ اردو میں مغربی ادب کے تراجم کی تو بہتات ہے مگر اس طرح کے تراجم کا فقدان ہے۔ عربی سے وابستہ طلبہ و اساتذہ کے لیے تو یہ جنس گرانما ہے۔ ہی عام زبان و ادب کا ذوق رکھنے والوں کے لیے بھی یہ مفید ہے کہ اس میں وادی نیل کی سیاسی تاریخ بھی آگئی ہے۔

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ڈاکٹر شوقی ضیف

جدید ایڈیشن

## جدید عربی ادب

تالیف

ڈاکٹر شوقی ضیف

(سابق پروفیسر قاہرہ یونیورسٹی)

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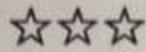
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تحقیقی و تنقیدی مضامین



ڈاکٹر مشتاق احمد وانی



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ڈاکٹر مشتاق احمد وانی

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# Various Congestion Control Techniques in Computer Networks

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## Abstract

With the advance in technology the focus has shifted from desktops and laptops to handheld devices like tablets, phablets, mobile phones, PDA etc. giving rise in the number of users connected to internet. About 900 million computers are connected to internet [Computers, 27 June 2014]. In an hour 383 thousand TB of data transmission takes place [Data, 27 June 2014]. As the traffic on internet increases, giving rise to the problem of congestion. Several congestion techniques have been proposed, in this paper the summary of several congestion techniques and methods over the years has been discussed. One of the latest approaches to control the congestion is based on Neural Networks is also included in this paper

## Keywords:

Congestion control; TCP; Neural Networks; ECN; XCN; ATM; MANETS; EWCCP; Back propagation algorithm.

## 1. Introduction

A Network is said to be in the state of congestion when the total demands for resources exceeds the total available resources. In other words we can say a network is in a state of congestion when the quality of the service delivered to the user decreases, whenever there is increase of load in a network. Take an example of downloading a 1 GB file. When there is no congestion, the file gets downloaded in few minutes, but on day when there is congestion in a network same file gets downloaded in hours. The problem of congestion has become an important issue these days.

## 2. Background

In the year 1999 Saverio Mascolo in his paper titled [Saverio Mascolo, 1999] states that there is a large bandwidth delay products in high speed communication networks thus resulting in adverse conditions on closed-loop congestion control algorithm. By using the combination of classical theory and Smith's principle a law for congestion control for high speed communication networks can be designed. This control law is transformed into discrete values and window form for ATM and internet respectively thus guarantying full and stable utilization of queue, links during transit and steady phase.

In the year 2001 Deepak Bansal And Hari Balakrishnan in their paper titled [Deepak and Hari, 2001] states that congestion results in reduction of transmission rate that is problematic for voice and video applications, therefore an algorithm that is nonlinear in nature is needed naming this algorithm as binomial Algorithm. The Binomial algorithm makes use of TCP style for Additive increase and multiple decrease for increasing and decreasing the transmission rate. In additive increase the rate of increase is inversely proportional to power  $p$  of current window size and for multiple decrease, rate of decrease is proportional to power  $z$  of current window size. There can be infinite number of such binomial algorithms, those that satisfy  $p + z = 1$  and all binomial algorithms converges for the fairness.

*\*Corresponding Author*





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# Plant Disease Detection: A Survey

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## Abstract:

Agriculture has become much more than simply a means to feed ever growing populations. Plants have become an important source of energy, and are a fundamental piece in the puzzle to solve the problem of global warming. There are several diseases that affect plants with the potential to cause devastating economic, social and ecological losses. In this context, diagnosing diseases in an accurate and timely way is of the utmost importance. Some diseases do not have any visible symptoms associated, or those appear only when it is too late to act. In those cases, normally some kind of sophisticated analysis, usually by means of powerful microscopes, is necessary. The methods that adopt this approach often employ digital image processing tools to achieve their goals and we also use neural network which include nonlinear nature, self-learning capabilities and fault tolerant nature that can be combined with digital image capabilities to design a system that will diagnose the disease in early stages. In this paper we are going to present the overview of recent trends used for detection of plant leaf diseases.

## Keywords:

Homogenous pixel counting techniques for cotton disease detection; co-occurrence matrix; back propagation neural network; modified self-organizing feature map; probabilistic neural network.

## 1. Introduction:

Plants play an important role in our daily life ranging from source of energy to economy of our nation. Diseases in plants can adversely affect both quality and quantity of crops in agriculture production. There are some diseases which can cause major loss in the plants which includes economic, social and ecological losses. In order to meet the loss we can diagnose and prevent the disease as soon as possible, for this, there are several ways of disease detection. Some diseases are visible with naked eyes but some are more complicated and cannot be seen with naked eyes requiring sophisticated microscopic observation.

Traditionally following approach is used by the farmer:

The farmer have to pay a long distance visit for seeking advice from agricultural expert, sometimes the experts is not in the position to give valuable advice using available information and knowledge. Early detection of diseases is a key point for crop management as the farmer can identify the disease in the developing stage itself, as such the impact of loss will be negligible.

During present time, Digital Image Processing is used as a tool for recognition of the plant diseases effectively. Digital imaging or computer vision involves image processing and pattern recognition techniques [Anand and Ashwin, 2012], [F. Argenti and L. Alparone, 1990], [B.Cunha, 2003], [P. Revathi and M. Hemalatha, 2012], [Tushar, Ravindra and Prashant, 2012]. Image processing techniques deal with image enhancement, manipulation, and analysis of images. With the recent advancement in image processing and pattern recognition techniques, it is possible to develop an autonomous system for disease classification of crops [B.Cunha, 2003].

Artificial neural networks find their application in pattern recognition (classification, clustering, and feature selection), texture analysis, segmentation, image compression, color representation and several other aspects of image processing [F. Argenti and L. Alparone, 1990] [B.Cunha, 2003], [P. Revathi and M. Hemalatha, 2012], [Tushar, Ravindra and Prashant, 2012], [Sanjay and Nitin, 2013] [Mokhled S. Al-Tarawneh, 2013] [Yan-Cheng Zhang et al., 2007] [Haiguang Wang et al., 2012] [Simona E. Grigorescu et al., 2002] [S. Arivazhagan et al., 2013] [Dheeb Al Bashish et al., 2010] [Song Kai et



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# Survey to Prevent Websites from XSS Vulnerabilities

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## Abstract

The attacks are worst because they are easy to make but tough to be traced. As Social Sites get more and more users across internet, Cross Site Scripting is becoming one of the major problems, which results in serious consequences, such as theft of some personal trusted data and information. This paper discusses the techniques which are applied for securing website from XSS vulnerabilities.

## Keywords:

XSS: Cross Site Scripting ; HTML: Hyper Text Markup language; URL: Uniform Resource Locator; SQL: Structured Query Language; WAS: Web Application Scanning

## 1. Introduction

Cross Site Scripting is one of the vulnerability found in web applications. Cross Site Scripting enables attacker to inject client side scripting into the web pages viewed by other users. In Cross Site Scripting, attackers use this vulnerability to bypass access controls and nearly 84% of all vulnerabilities are documented by XSS. In Cross Site Scripting an attacker can gain access to sensitive data in web page contents, such as session cookies and a variety of information maintained by the browser. Cross Site Scripting surpassed all vulnerabilities with researchers in 2007 as many 68% of websites most likely open to XSS attacks. Cross Site Scripting problem is because of website's server code failure and HTML contents and vulnerability like SQL injection sometimes do occur with XSS.

### 1.1 At User end

There are steps that users can take to protect themselves from XSS (and other) attacks:

Restrict Untrusted JavaScript: Allowing all JavaScript to run opens a user up to XSS attacks. The most effective (but not foolproof) method for a user to prevent XSS attacks is to allow JavaScript to run only if it comes from a domain that the user explicitly trusts.

- ❖ Use Built-In Browser Protections
- ❖ Restrict External Websites from Requesting

### 1.2 At Developer end

The most effective way to get rid of XSS vulnerabilities is to ensure that developers understand the dangers of XSS attacks and have tools that allow them to create secure web applications. There are tools that help developer to create secure web applications like Microsoft AntiXSS Library, Web Vulnerability Scanners etc.

### 1.3 Through Client/Server Coordination

Another technique for mitigating XSS attacks that has started to emerge is using coordination between the web application and the client browser to separate user supplied data from web application HTML.

### 1.4 Network Administrators

Modifications to desktop configurations and web application code are often outside the network administrator's control. While protecting the enterprise against XSS attacks by relying solely on network devices can be hard, there are a number of technologies that can help like White Trash



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# Various Active Attacks of Network Layer in MANET: A Review

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## Abstract

Today's one of the most demanding area of wireless network is MANET (Mobile Ad hoc Network). MANET is a self-configuring temporary collection of nodes, having property of dynamic topology, no central control and portability in terms of mobility. The general use of MANET is in ad hoc conferences, campus networks, homes and commercial level applications. Also MANET is used in the environment where wired network is impossible to construct like disaster management, rescue operation, Military battlefields etc. The current demand or threat for MANET is its security and the robustness and operation performance is also depends on security. An attacker can easily attack on MANET because of its open nature, limited battery power, and bandwidth constraint. A lot of researches have been done on the MANET security. In this review paper we are going to overview the various MANET security threats and their mitigation techniques.

## Keywords:

MANET, malicious node; dynamic topology; security black hole; wormhole; sleep deprivation; Grayhole attack;

## 1. Introduction

The industry of infrastructure less communication is growing exponentially from last decades due to its changing topology, no central control authority and portability. The transmission of signals or data from one point to another using radio waves instead of wires is known as infrastructure less communication. Modern handheld devices like personnel digital assistant (PDA's) and cell phones is now playing an important role in our daily life. Accessing internet from railway station, airport, bank, café and public location; file exchange or browsing internet from cell phones are few examples of Mobile Ad hoc network (MANET). All this is possible of mobility of wireless devices. The best example of MANET [Fig 1] is a group of soldiers in war area where soldiers are wirelessly connected with each other with help of limited battery power and a set of ad hoc protocols that help them to maintain communication connectivity while changing their location.

Due to open nature, low cost, limited battery power and dynamic topology MANET are vulnerable to security threats. Some of them we are going to discuss.

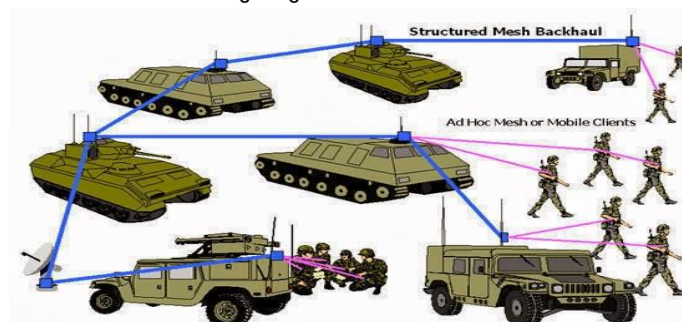


Fig 1 Mobile Ad-Hoc NETWORK (MANET)





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# A Survey on Distributed Denial of Service Attacks and Defense Mechanism

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## Abstract

Distributed Denial of Service Attacks are one of the major issues of the internet security. These attacks are consuming the bandwidth and all the services of the victim. There are various techniques used to counter these attacks. In this paper, we present different types of Distributed Denial of Service Attacks and review their defense mechanism. The main aim of this paper is to cover the major aspects of countering the Distributed Denial of Service Attacks. Here we provide review of different papers that describe the methods of defense against the Distributed Denial of Service Attacks. These methods are based on Ingress/Egress filtering, Rate-limiting mechanism, Hop Count Filtering, CAPTCHA based defense and DWARD method.

## Keywords:

DDOS, Filtering, Defense, CAPTCHA,

## 1. Introduction

In the world of internet denial of service attacks are becoming very common. These attacks are increasing with the great pace and have increased the risk of network devices and servers than before. Due to this reason people and organisations that are having data and large servers on the internet are making greater investments and plans to defend themselves and make their data secure against different attacks which also includes Denial of Service Attacks [Mitrokotsa and Douligeris, 2006].

The attackers quickly launch the attacks as the architecture of World Wide Web is prone to many kinds of threats which also include Denial of Service Attacks and they have various automated tools available for launching the attack which require less human effort. The main aim of the attack is to degrade the services by sending large traffic to the legitimate user.

There are various types of Denial of Service Attacks which include:

### 1.1 Network layer attack

In this type of Denial of Service Attacks the main target is the hardware network devices. This type of attack is launched by exploiting hardware resources vulnerabilities or some software loopholes.

### 1.2 Operating System level attack

In this type of attack the loopholes in the operating system of the target machines are used to launch an attack.

### 1.3 Application level attack

In application level Denial of Service Attacks the attacker identifies the vulnerabilities of the applications to launch an attack. This type of attack is becoming more popular as this type of attack becomes harder to get detected.

### 1.4 Data Flood attack

In data flood attack the main target of the attacker is the bandwidth of a network. In this type of attack





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# A Review on Online Password Guessing Attacks and their Countermeasures

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## Abstract

The word password itself is a combination of two words i.e., PASS and WORD where PASS implies personal account security system and WORD is a word or a string used for user authentication to prove their identity. The use of password is a major point of vulnerability in computer security, as passwords are being cracked to gain unauthorized access to a computer without the computer owner's awareness. Password selection will be a contentious point as long as user has to select one. The problem usually is remembering the correct passwords a user needs to remember. Users end up selecting commonly used passwords because they are easy to remember. Anything from birth days to the names of loved ones. This is vulnerability because it gives other a good chance to guess the correct password. This paper provides overview on certain online password cracking strategies used for cracking methods like brute force attack, dictionary attack etc have a bad impact on those passwords which are easy to guess and most commonly used.

## Keywords:

Password; Brute Force Attack; Dictionary Attack.

## 1. Introduction

Password is mostly used methods of user authentication and will most likely continue to be widely used for the future, due to their suitability and practicality for service provider and end users. Although there are many user authentication mechanisms have been suggested in the past e.g. using smart card or public key cryptography but none of them has been made any reputation in the consumer market [Pinkas and Sander, 2002]. The password based authentication, although very convenient has some kind of drawbacks as the human beings have a great tendency to choose relatively short and simple passwords that they can remember. Thus the chosen passwords belong to a small and predictable domain [Goyal, Kumar, Singh, Abraham and Sanyal, 2005].

In order to make strengthen the password base scheme, research work is advanced in two directions, In one direction, some tools are developed so that the passwords are harder to be guessed successfully while remembering easily memorable to the user. These tools include password generators, Proactive password checkers and reactive password checkers [Youngzhong and Zhen, 2009]. Password generators produce strong passwords, but may be hard for the users to be remember. Proactive checkers reject the weak password chosen by the end user when they sign up an account or change password. The weak point of proactive check tool is that if the passwords are rejected many times the user may complain or even be frustrated to continue using the services. The reactive checkers run time to time to find weak passwords in a system and then notify the correspondent user to change their passwords. The problem with reactive checkers is that the weak passwords are susceptible to attack before the checkers find out.

## 2. Different Types of Online Password Guessing Attacks

Some attacks are passive, it means data is monitored; the other way is active, which means data is altered with intend to corrupt or destroy the information or the network itself.

### 2.1. Brute Force Attacks

Brute Force Attack is the most widely known password cracking method. This attack simply tries to use every possible character combination as a password.[w1]. A reason why brute force attack could





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# Understanding Research Collaborations through Co-authorship Social Networks

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## Abstract:

Relationships established in a virtual setup on social networking websites are casual whereas the relationship established through co-authorship is not casual and mostly carries some meaning and weightage to it. These co-authorship relationships can be transformed and studied as academic social networks. In this paper we use social network analysis metrics to study these academic social networks obtained from the underlying co-authorship relationship. We used web mining techniques to obtain the underlying co-authorship data which is then analyzed in terms of social network analysis measures. It was observed that at the institutional level people have very little collaboration with people within their organization.

## Keywords:

Academic Social Network; Co-authorship; Digital Libraries.

## 1. Introduction

Web 2.0 has been a paradigm shift in the way we establish and maintain connections. Advances in the web world and Information and Communication Technology has provided the necessary impetus for the academics to enhance their research collaborations [Chang and Huang, 2014; Zhao and Strotmann, 2014]. These advances have been instrumental in deriving academic collaborations by way of enabling people geographically apart from each other to share their ideas, work and results. It has made the job of online literature management services much more easy on one hand and accessible to a large audience on the other. These literature management services or digital libraries are a rich source of co-authorship information which can be analysed in a number of ways.

Social network analysis (SNA) can be used to analyse the co-authorship data by converting it into social networks or graphs. SNA has the potential to provide answers to various important questions related to collaboration patterns, flow of knowledge, etc. For understanding co-authorship based collaborations one needs to focus on joint publications [Vidican et al., 2009] as they contain the co-authorship information. Thus we have a graph or more specifically a social network with authors of these publications as nodes and the co-authorship relationship between them as edges. In order to analyse and understand this form of collaboration one needs to have disambiguated publications data [Torvik et al., 2005].

In this work we obtained publications data from institutional websites for understanding the research collaborations among people of a particular institution and publications data from DBLP and Google Scholar was obtained to understand the research collaborations of individual authors. From this data





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# Author Profile Integration Using Digital Citations and Web Mining Techniques

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### Abstract:

In this contemporary world everyone wants to look different from the crowd and researchers are no exception. In order to define or describe a researcher in an easy and convenient manner, it is important to profile her on the basis of various attributes. However, in a virtual environment where it is hard to differentiate between similar entities, profiling of authors is not a straightforward task and one needs to employ some disambiguation techniques to differentiate similar entities first. The widespread use of digital libraries and digital literature management has provided much needed basic resources for profile creation and integration. This data in itself may not be sufficient for profile creation and additional data has to be obtained from the Web. In this paper we use Web mining techniques for data collection from various resources for the purposes of profile creation and integration. In particular we mine publications data from DBLP which is then populated with additional publications features obtained from the Web in a resource bound manner. On the basis of this populated publications data we integrated profiles of authors and presented them in terms of their important research attributes.

### Keywords:

Profile Integration; Virtual Environment; Web Mining; Digital Libraries.

## 1. Introduction

Profiles help define persons, places, organizations, etc. In the era of Web 2.0 profiles have become a much more common term and one often finds profiles of facebook users defining them in terms of their important attributes like name, place of living, education and work details, etc. The transition from casual facebook profiles to formal profiles in LinkedIn, ResearchGate, etc. has been an instant phenomenon. We can find profiles of professionals and researchers on these websites defining their important features like name, work place and designation, education, publications, etc. It may seem unnecessary to have a new solution if we already have such services which provide detailed information about a researcher, but this is not a straightforward task. These websites require a user to register for their services, manually update his education and work information, and update his research credentials from time to time. Although this may seem to be a trivial task but in this busy world it may be unfair to expect every researcher to update his credentials from time to time in a disciplined fashion. Therefore, it becomes imperative to have an automated system that shall be capable of extracting and integrating researcher profiles from a small set of data sources.

It is important for organizations and interested parties, like funding agencies, to have almost an accurate idea of the research output of a person. Funding agencies need this information to evaluate





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# Privacy Preserving Data Mining using Soft and Hard Computing Techniques

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## Abstract

Data mining is a branch of Computer Sciences where hidden information, previously unknown is excavated from enormously large databases. Apart from the benefits of the data mining in the fields of business, medicines, agriculture, telecommunication, medical diagnosis, networking, decision making, genetic engineering etc., it has to face some serious challenges. Among all challenges data privacy is acclaimed to be most important that needs to be handled properly. Conventional methods, although, give solutions to preserve privacy but at the cost of additional complexity of the solutions or informational loss. In this paper we have tried to give a solution that is not vulnerable to privacy attacks and at the same time does not increase complexity of the solutions or informational loss.

## Keywords

Data privacy, Fuzzy, Fuzzy membership function

## 1. Introduction

The advent of low cost storage devices, fast processors and extensive use of information technology has made it possible to collect large amounts of data in data repositories from almost every field that affects human life [Cavoukian, A., 1997], [Li, C. and Biswas, G., 2002]. With the help of sophisticated and analytical tools and techniques data in the data repositories can contribute in decision making and critical analysis provided [Ahmad A. and Dey L., 2007]. The success of various organizations extensively depends on the volume of data available with them. Such vast data repositories have a significant role in future decision making provided if appropriate knowledge discovery mechanism is applied for extracting hidden, but potentially useful information embedded in the data [Ahmad A. and Dey L., 2007]. As such the traditional tools and techniques fail to deliver on expected lines when dealing with complex situations, handling high volumes of data, handling situations where the data for decision making is either insufficient or imprecise. Data Mining is a blend of traditional data analysis methods with sophisticated algorithms for processing very large volumes of data. Data Mining can be defined as an automated or semi-automated exploratory data analysis of large complex data sets that is used to uncover patterns and relationships in data [Zhihua X., 1998]. Modern statistical and computational technologies are applied to the problem in order to find useful patterns hidden within a large database [Tsantis L. and Castellani J., 2000], [Luan J., 2002], [Ahmad A and Dey L., 2007]. To uncover hidden trends and patterns, data mining uses a combination of an explicit knowledge base, sophisticated analytical skills, and domain knowledge. In effect, the predictive models formed from the trends and patterns through DM enable analysts to produce new observations from existing data.

Last few decades have witnessed many successful applications in data mining from varied sectors such as marketing, finance, medical diagnosis, banking, manufacturing, education, fraud detection and

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# Current Scenario of the e-Governance Related Initiatives in India

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## Abstract:

E-Governance, meaning 'Electronic Governance' is nothing but the use information and communication technologies (ICTs) at various levels of the government and the public sector and beyond, for the purpose of enhancing governance. Development of any country can be judged by the scope of e-governance in that country. This new paradigm has brought about a revolution in the quality of service delivered to the citizens. It has ushered in transparency in the governing process; saving of time due to provision of services through single window; simplification of procedures; better office and record management; reduction in corruption; and improved attitude, behavior and job handling capacity of the dealing personnel. The National e-Governance Programme (NeGP) which is the flagship e-governance programme of the Union Government, was approved by the Government of India on May 18, 2006 comprising with 27 Mission Mode Projects (MMPs) at the Central, State and Local Government level. The NeGP aims at improving delivery of government services to citizens and businesses with a vision to make the services accessible to the common man while ensuring efficiency, transparency, reliability and effective delivery of services at affordable costs.

In this paper we present an overview of e-governance projects which are being used in India and the current status of these e-governance related initiatives based on secondary data received from various sources.

## Keywords:

e-governance; NeGP; MMP; ICT; NKN etc.

## 1. Introduction

With India's vast population and geographic dispersion, one of the real challenges faced by the government is to reach every citizen at the grass root level and provide them with information and access to different government services. This has made it difficult for the people to leverage the full potential of government initiatives. The infusion of Information and Communication Technology (ICT) has played a prominent role in overcoming this challenge. The metamorphosis in the quality of delivery of services to the citizens by the government has been more pronounced in recent years with the advent of e-governance. E-Governance is the application of Information and communications technology to government functioning in order to create 'Simple, Moral, Accountable, Responsive and Transparent' (SMART) governance [V S Beniwal & Kapil Sikka, 2013]. E-Governance provides a sound strategy to strengthen overall governance. It can not only improve accountability, transparency and efficiency of government processes, but also facilitate sustainable and inclusive growth. An effective e-Governance policy will eventually lead to the following advantages — [Nilotpal Chakraborty, 2013]

- Exchange of information with citizens, businesses or other government departments
- Speedier and more efficient delivery of public services
- Improving internal efficiency
- Reducing costs / increasing revenue

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# An Analysis of Challenges in English to Urdu Machine Translation.

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## Abstract:

Of late English has become one of the most preferred language world over. However, not everyone on this globe is a conversant with this medium of communication. Machine Translation has become indispensable in such a scenario where physical and logical boundaries are vanishing and one needs to be able to communicate at will and in a medium which he is conversant with. At present Machine Translation is the most fascinating but equally a challenging problem. Researchers are trying to translate English language to their native language, but achieving a flawless Machine Translation has become a real challenge for researchers all over the world. This paper discuss various open challenges in machine translation with a focus on the problems encountered in English to Urdu Machine Translation. We also discuss the parallel corpora, which we feel is a key concept in Machine Translation and may provide a better solution to these open challenges in Machine Translation.

## Keywords:

Machine Translation Challenges, Parallel Corpora.

## 1. Introduction:

Machine translation (MT) is automated translation or "translation carried out by a computer", as defined in the Oxford English dictionary. It is a process, sometimes referred to as Natural Language Processing which uses a bilingual data set and other language assets to build language and phrase models used to translate text.

Apparently the first suggestions concerning Machine Translations (MT) were made by the Russian Smirnov-Troyansky and the French man G.B Artsouni in the 1930's. However the first serious discussions were begun in 1946 by the mathematician Warren Weaver. He and many others were inspired by the success of the allied efforts using the British Colossus computer to break the German military code produced by the Enigma machine, and the obvious similarity between the task of decoding and encoded message and the task of translation of one language into another. By 1954, there was a Machine Translation project at Georgetown University which succeeded in correctly translating several sentences from Russian into English. Soon there were Machine Translation projects at MIT, Harvard and the University of Pennsylvania. [Thomas D. Hedden].

In 1964, after more than \$20,000,000 had been invested by the Federal Government in MT, the National Academy of Sciences commissioned the Automatic Language Processing Advisory Committee (ALPAC) to write a study of the status of MT. The committee, headed by John R. Pierce, wrote a now-famous report in which it expressed doubt that a fully-automatic MT system could ever be produced. That report sounded the death-knell for funding of MT research, and MT was neglected for many years afterwards. [Thomas D. Hedden].





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# Role of ICT in driving e-commerce business in developing countries

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## Abstract:

ICT and e-commerce are inseparable terms as the e-commerce industry is absolutely dependent on ICT for its operations and intensification. e-commerce is also referred to as application of ICT in business and commerce. ICT is an umbrella term which involves usage of computers, including hardware, software and networks used to communicate, store and manage the requisite information. The concept of e-commerce has been evolving since a number of years and is causative to the economic growth of several developed and developing economies. The prospective for the growth of e-commerce in the developing countries is very high but ICT being the precondition, lack of ICT infrastructure hampers the rate of its growth. The growth of e-commerce is primarily dependent upon the boost in ICT infrastructure. The Smartphone market and Internet diffusion has proved to be a catalyst for growth of e-commerce industry. This paper aims to discuss the role of ICT and its services in driving e-commerce industry in developing countries like India and the shift from e-commerce to m-commerce in the near future.

## Keywords:

ICT; e-commerce; m-commerce.

## 1. Introduction

Technology continues to be a transformative force and is changing the way individuals live, interact, and work. ICT had changed the approach of doing business globally and the scenario is identical for India and other developing economies. ICT is an umbrella term which involves usage of computers, including hardware, software and networks used to communicate, store and manage the requisite information. The applications of ICT are very diverse and one such area is electronic commerce. Today e-commerce has become an integral part of everyday life. Accessibility to e-commerce platforms is not a privilege but rather a necessity for most people, particularly in the urban areas. There are alternative e-commerce platforms available for almost every aspect of our lives, starting from purchasing of everyday household items to online shares and commodities. "e-commerce" is defined as the application of information and communication technologies (ICT) which support all the activities and realms of business [Srivastava and Singh, 2013]. The concept of e-commerce has been evolving since a number of years and is causative to the economic growth of several developed and developing economies. Out of the key factors responsible for the growth of e-commerce ICT is a leading one. ICT and e-commerce





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# Data Mining and Soft Computing - A Survey Report

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## Abstract

Data mining is the discovery of knowledge which helps us to find out the secret information from large databases by analyzing enormous set of data and by extracting the meaning of the data, and then predicting the future trends. Conventional methods that have been implemented are not so desirable that they can extract, analyze and predict the huge amount of data in the era of competition. Soft computing is being used as the important tool in this area. Soft computing, are used to identify relationships among a set of items in a database. These relationships are not based on inherent properties of the data themselves, but rather based on co-occurrence of the data items. The present survey will focus on different techniques of soft computing and their impact on data mining and also to find out how the soft computing techniques are more user friendly and reliable than the conventional techniques.

## 1. Introduction

It has been globally accepted that information is a very powerful asset that provides significant benefits to an organization and provides competitive advantage in the business world. Organizations have vast amounts of data which increases day by day and finding the interesting information from that data is the main aim of any organization.

Data mining is the process of discovering new facts, figures and relationships in the data. By data mining we find useful in data that are useful for the organization. Through data mining large set of data is analyzed to find unsuspected relationships and summarized the data in a way that is useful and understandable to the organization. [Meenakshi Sharma, 2014] The process of data mining is shown in the following figure 1.

**Gather the data:** in this stage the data from different sources is collected and stored in data warehouse.

**Clean the data:** In this stage the errors, corrupt and in accurate records are removed from the data, like Age = 250.

**Extraction of features:** In this stage only the interesting attributes of data are obtained i.e. the attributes which are of concern.

**Discover and extract the patterns:** This is the stage where the discovery and extraction of information takes place.

**Evaluation of results:** In this stage the facts\ patterns discovered are checked for correctness, because every fact discovered is not useful so the judgment is necessary before following the solution.





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# DNA Sequence Alignment: Methods and their analysis

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## Abstract:

DNA sequence is the way of knowing the order of nucleotides within the DNA strands. And DNA Sequence Alignment is to compare two sequences to search for the homology of a newly one of the reference sequence for analyzing the relation between the two DNA sequences. This analysis could lead to know the causative agents of some diseases and the relation between the organisms. This paper is focused on the methods of DNA sequence Alignment and their analysis and related Algorithms.

## Keywords:

DNA Sequence, DNA alignment, Alignment Algorithms.

## 1. Introduction to DNA and its Chemical Composition

Deoxyribose nucleic acid (DNA) is a macro molecule or polymeric chemical compound composed of 4 types of building blocks called deoxyribotids or deoxyribonucleotides. Each of these nucleotides is composed of three things, a phosphoric acid molecule (or Phosphatic group); a pentose sugar called deoxyribose and nitrogenous bases, purine and pyrimidine. These are 4 types of nitrogenous bases in DNA two, Two ringed purines, adenine (A) and Guanine (G), and two one ringed pyrimidines cytosine (C) and Thymine (T). DNA is a double-helical structure. The two deoxyribose residues are attached by a phosphodiester bond, while the nucleotides are attached by a hydrogen bond. The portions of DNA that carries the genetic information are called genes. DNA can be chromosomal DNA, mitochondrial DNA and chloroplast DNA based on its presences. Chromosomal DNA is present in the nucleus of a cell, mitochondrial DNA is present in the mitochondria of a cell and chloroplast DNA is present in the chloroplasts of plant cells. There are 4 forms of DNA structures A-, B- & C- DNA & Z-DNA. A-, B-, C- are right handed helixes while Z- DNA is left handed helix. The basic unit of inheritance is gene. The complete set of genes is called genome. Each organism has a set of genes which provides the complete hereditary information of an organism. The DNA has also various functions like protein synthesis, Replication, Transcription and mutation. Mutation has importance in evolution.

## 2. The Watson Crick model of DNA

In 1953 James D. Watson and Francis H.C Crick build a model at Cambridge University to explain how the adjacent deoxyribonucleotides are joined in a chain by Phosphodiester bond which links the 5' Carbon of the deoxyribose sugar of one mononucleotide unit with 3' carbon of the deoxyribose sugar of other mononucleotide unit.





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# Free Space Optics (FSO): An Emerging Wireless Technology

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## Abstract

Free space optics (FSO) is one of the emerging technologies for advanced telecommunication purpose. It is a technology which makes use of light for the transmission of data signals. The data is transmitted in the form of optical signals across wireless medium (e.g. air). The increasing demand for high bandwidth in various communication networks is a technology concern facing most of the service providers. FSO handles the transmission of data rates at Gbps level. It has drawn attention in telecommunication industry, due to its cost effectiveness, easy installation, and quick establishment of communication link especially in the disaster management scenario, high bandwidth provisioning and wide range of applications. Free space optics provides optical transmission of voice, video and data using air as the medium of transmission. It has become more and more interesting as an alternative to radio frequency (RF) communication over the last two decades and has found its applications in several areas of short and long haul communications. The high speed and large bandwidth offered by light wave communication makes it very attractive means of meeting the future demand for broadband internet access and HDTV broadcasting services. It consists two systems each consisting of an optical transceiver to provide full duplex (bidirectional) capability. The paper reviews the FSO link design and addresses the atmospheric challenges faced by FSO technology.

**Key words:** FSO; High Bandwidth Transmission; Optical Communication; Laser; LED; APD; Scattering; Absorption and Scintillation.

## 1. Introduction

The two important resources of any electronic communication are power and bandwidth. A communication engineer always keeps into consideration the minimum use of these resources at maximum efficiency. For both of these resources we have to pay for and therefore any of the technology which provides us any of the above resources at minimum cost or free is always preferred. Free space optics is one of them which provides us large bandwidth at free of cost.

Free-Space Optical communication (FSO) has become more and more interesting as an alternative to Radio Frequency (RF) communication over the last two decades. It is an emerging technology that has found application in several areas of the short and long-haul communications. The strengths of this technology's inherent are its lack of use of in-ground cable (which makes it much quicker and often cheaper to install), the fact that it operates in an unlicensed spectrum (making it easier from a political/bureaucratic perspective to install), the fact that it can be removed and installed elsewhere (allowing recycling of equipment), and its relatively high bandwidth (up to 1 Gigabyte per second (Gb/s) and beyond).

Free Space Optics (FSO) is a laser driven technology which uses light sources and detectors to send and receive information, through the atmosphere somehow same as Fiber Optic Communication (FOC) link, which uses light sources and detectors to send and receive information but through a fiber optic cable. The motivation for FSO is to eliminate the cost, time, and effort of installing fiber optic cable, yet to retain the benefit of high data rates (up to 1 GB/s and beyond) for transmission of voice, data, images, and video [Hennes and Otakar, 2010].

This has been developed in response to a growing need for high-speed and tap-proof communication

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# **Data Mining: Past, Present and Future**

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## **Abstract**

Data mining is the process of discovering useful hidden patterns and relationships from data. It is a part of knowledge discovery process that offers a new way to look at data. Data mining digs out valuable, non-trivial information from large databases apparently unrelated databases (sets). Data mining is a new discipline lying at the interface of statistics, database technology, pattern recognition, machine learning and other areas. The successful applications of data mining have enriched the various fields of human life including e-business, marketing and retail, medicine, education, bioinformatics etc. Data mining has great potential in today's competitive business world and has been garnering a significant amount of importance in recent years, creating a strong industrial impact. Based on this observation it is evident that the future of data mining would be promising in coming years. Furthermore, the typical future trends of data mining include standardization of data mining languages, complex objects of data, web mining etc. Hence this paper discusses the various improvements and breakthroughs in the field of data mining from past to present and also explores the future trends.

## **Keywords:**

Data Mining; Databases; KDD; Bioinformatics.

## **I. Introduction**

Across a wide variety of fields, data are being collected and accumulated at a dramatic pace. There is an urgent need for developing proper mechanisms of processing these large volumes of data and extracting useful knowledge from large repositories for better decision making. Historically, the notion of finding useful patterns in data has been given a variety of names including data mining, knowledge extraction, information discovery, information harvesting, data archaeology and data pattern processing. The term data mining has mostly been used by statisticians, data analysts and MIS communities. It has also gained popularity in the database field. The phrase knowledge discovery in databases was coined at first KDD workshop in 1989 (Piatetsky-Shapiro 1991) to emphasize that knowledge is the end product of data-driven discovery [Cooley. R. , Mobasher. B & Srivastava, J., 1997].

KDD refers to overall process of discovering useful knowledge from data while data mining refers to application of algorithms for extracting patterns from data. Data mining is best described as the union of historical and recent developments in statistics, AI, machine learning and database technologies. These techniques are then used together to study data and find previously hidden trends or patterns within. The various application areas of data mining include medical field, e-business and finance, software engineering, bioinformatics, manufacturing, banking, Customer Relationship Management (CRM), climate modeling, Fraud detection etc. Knowledgeable observers generally agree that in-depth decision support requires new technology [Kumar. D, Bhardwaj. D, 2011]. This new technology should enable the discovery of trends and predictive patterns in data, the creation and testing of hypothesis, and generation of insight-provoking visualization. Data mining will become much more important and companies will throw nothing about their customers because





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# Web Mining: A Roadmap

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## Abstract

The internet seems to be a magical place where anything seems possible, where information is literally at our finger tips, where people across the world can connect within no time. With the massive explosion of WWW, today there are several billions of HTML documents, pictures and other multi-media files available via internet and the number is still increasing. Considering the impressive variety of the web, retrieving the 'desired' information has been a very difficult and challenging task. Web mining came into being, which is an important area of data mining dealing with the extraction of desired or interesting information from the web. The aim of this paper is to explain web mining and its categories, comparison of web mining and data mining, and to outline key areas of web mining and its future directions.

## Keywords:

Web Mining; Web structure mining; Web content mining and Web usage mining.

## 1. Introduction:

The World Wide Web has grown in the past few years from a small research community to the biggest and most popular way of communication and information dissemination. Every day, the WWW grows by roughly a million electronic pages, adding to the hundreds of millions already on-line. WWW serves as a platform for exchanging various kinds of information, ranging from research papers, and educational content, to multimedia content and software. The continuous growth in the size and the use of the WWW imposes new methods for processing these huge amounts of data. Because of its rapid and chaotic growth, the resulting network of information lacks of organization and structure. Moreover, the content is published in various diverse formats. Due to this fact, users are feeling sometimes disoriented, lost in that information overload that continues to expand. Issues that have to be dealt with are the detection of relevant information, involving the searching and indexing of the Web content, the creation of some meta-knowledge out of the information which is available on the Web, as well as the addressing of the individual users' needs and interests, by personalizing the provided information and services. The internet has essentially changed the approach with which we interact with one another, do our business, collect information and accomplish our purchases. Before this era people used to gather information from newspapers and magazines, communicate through postal services, purchase products from nearby markets and even do business manually through paper. Due to modernization and globalization all the activities explained above [Aishwarya R, Smita G, Srishti A & Nimisha A., 2012]

Web mining is a very broad research area emerging to solve the issues that arise due to the WWW phenomenon. The Web mining research is a converging research area from several research communities, such as Databases, Information retrieval, statistics, NLP, multi-media etc. Web mining aims to extract and mine useful knowledge from the web [Bing L & Kevin C., 2004]

## 2. Related Work:

To perform any website evaluation, web visitor's information plays an important role, in order to assist this, many tools are available. Li, L, Zhang and C. And Zhang [Yang, Q. and Zhang, H., 2003] expressed that Web Mining is a popular technique for analyzing website visitor's behavioral patterns in e-service systems. Jian Pei, J. Han, B. Mortazavi and Hua Zhu [Jain P, Jiawei H and Hua Z., 2000] found that Web





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# An Overview of Different Requirements Elicitation Techniques

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## Abstract

Requirements elicitation (RE) is the important part of software development since the development of system is entirely based on understanding the requirements of the system. It is crucial and difficult part of requirements engineering phase. It is the starting process of requirements engineering and is the key to success for any project. No single requirements elicitation technique has capability to gather all requirements so we have to use combination of many techniques to ensure all requirements are gathered properly, resulting in effective requirements elicitation. Before using any of the techniques we must have in-depth knowledge of all those techniques. The goal of this paper is to discuss various RE techniques and show their importance in Requirements Engineering phase of SDLC.

**Keywords-** Requirements Elicitation Techniques; Stakeholders; Joint Application Development

## 1. INTRODUCTION

Requirements elicitation (RE) is the initial process of requirements engineering phase. RE involves gathering software requirements from stakeholders with the help of some predetermined techniques. [Browne et al., 2002] Have defined requirements elicitation is the first step in gathering user requirements; it is the process of understanding and acquiring the needs of users and other stakeholders. If requirements elicitation is not done properly it leads to failure of software systems. Wiegers claimed "If you don't get requirements right, it doesn't matter how well you execute the rest of the project" [E. Wiegers, 2006]. The principle factor in the success of requirements elicitation is that the requirements meet the needs of stakeholders. It is a challenge to software engineering community to satisfy stakeholders' needs in a cost-effective and rapid way. Successful requirements elicitation process is determined by how much effective is the communication between stakeholders and analysts. Stakeholders not only refer to humans such as customers, end-users, and developers but also refer to physical, organizational environment where the desired system is to be used [Kotonya et al., 1998] [Sharp et al., 1999] [Vries et al., 2003]. A large number of techniques exist to obtain quality requirements from different users. But because of insufficient knowledge about techniques it is difficult to determine a set of appropriate techniques to gather requirements in an effective and systematic manner. Especially for large and complex project this task gets even more challenging. Since requirements elicitation is a challenging process therefore it must be done in a proactive manner [Vries et al., 2003].

Analysts having much experience and more knowledge about techniques are more successful than those who lack in them. Less experienced analysts often select a technique based on one of two reasons: (a) it is the only one they know, or (b) they think that a technique that worked well last time must surely be appropriate this time [M. Hickey et al., 2003]. Analysts should understand and identify each elicitation technique available and then choose the most appropriate to gather user requirements. If the error occurs in collecting requirements it is very expensive to rectify it in the later stages. More the delay in rectifying an error more will be cost and time to correct it.





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# Divergence Patterns for English-Kashmiri Translation

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## Abstract:

Machine Translation is considered one of the most challenging tasks for research by the academicians. Complete flawless Machine Translation initially seemed an easily attainable goal, but with time it showed more complications and challenges. These challenges made it more interesting and promising study of research. However, the term "easily achievable goal" changed to "a dream yet to be realized". One such challenge is the study of translation divergence between any candidate Source language and Target Language for machine translation. Translation divergence is the result of grammatical differences between any two languages. Translation Divergence is independent of the methodology used to achieve overall translation but varies with each language pair. Every language pair has a different level and complexity of divergence. The literature on Machine Translation gives several classifications of Translation Divergence. In this paper we try to study some of the translation divergences between English and Kashmiri Language based on Dorr Classification. [Dorr, 1994]

## Keywords:

Translation Divergence; Machine Translation; Syntactic Divergence; Lexical-Semantic Divergences.

## 1. Introduction

Like any other language pair, English-Kashmiri language pair also exhibits a difference in realization of their syntax and word order. This creeps in different sources of translation divergence. Translation Divergence is not the part of the solution but it is most crucial part of understanding the problem of machine translation and aids in devising proper algorithms for translation with better efficiency & accuracy that form the basic part of the solution.

Divergence is common between any candidate language pair for translation. Translation divergence occurs when structurally similar sentences of the source language do not translate into sentences that are similar in structure in the target language [Dorr, 1993]. The study of translation divergence is one of the most decisive but equally complex studies in the overall process of machine translation. "A translation divergence is a difference in syntactic surface structure between sentences of the same meaning in different languages; the semantic content of the source language sentence is expressed by different morphological or syntactical forms in the target language" [Francoise van Dooren 2012]. In simpler terms, the grammatical (morphological & syntactical) difference in two languages instigates in a divergence from the expected results in the translation sentence pairs. A divergence occurs when a sentence in language L1 translates into sentence in a language L2 in a very different form [Dorr: 1994].

English language has a rigid word order pattern and follows a configurational structure while as Kashmiri is relatively less rigid and can be classified as a non-configurational language.

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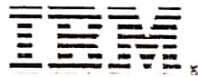
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# Service and Version Fingerprinting Techniques and Countermeasures

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**Abstract**—Scanning for vulnerable ports and services is one of the pivotal activities in Vulnerability Assessment and Exploitation process. There are wide varieties of tools available for port scanning i.e. whether the destination port is open / closed. However only handful tools are available that can predict to a greater accuracy the service running on the remote port. This paper explores various such tools and examines in depth the working of Nmap service fingerprinting module. Further we evaluate various mechanisms to mask common services from getting fingerprinted.

**Keywords:** Service Fingerprinting, NMap, Vulnerability Assessment and Exploitation, OWASP

## INTRODUCTION

We know Vulnerability Assessment and Exploitation is broadly classified into five stages namely Reconnaissance, Scanning, Gaining Access, Maintaining Access and Covering Tracks. Reconnaissance stage is primarily concerned about getting as much as information possible about the target as possible. Once reconnaissance stage of the hacking process is complete, Scanning stage starts. The main aim of the scanning stage is to find the remote operating system and find various vulnerable services running on the target system [1,2]. Operating system fingerprinting can be predicted with greater accuracy using passive and active fingerprinting. There are varieties of tools available in both categories like nmap & Xprobe2. However to find the services running along with the version number with a high degree of accuracy requires additional techniques.

Various services respond to different request in different versions in different ways based on the internal stack implementation. Service fingerprinting is based on the technique of finding the match in the database against the response to the various probes sent by targeting particular modules of the application. Apache Web Server for example replies to invalid URL by sending different response text in different versions. The response can then be compared with the database thereby revealing the service name and the version information.

## RELATED WORK

There have been tools available that can perform service fingerprinting. Some tools are even more application specific e.g. Web Server fingerprinting. Once the list of open ports



# جدید عربی شاعری



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ڈاکٹر شمس کمال انجم

JADEED ARABI SHAIRI

(Modern Arabic Poetry)

by

Dr. Shams Karmal Anjum

ڈاکٹر شمس کمال انجم ہماری یونیورسٹی کے ہونہار استاذ ہیں۔ ایک اچھے استاذ ہونے کے ساتھ ساتھ یہ شعر و شاعری اور تصنیف و تالیف کا بھی ذوق و شوق رکھتے ہیں۔ انہوں نے اردو اور عربی میں کئی کتابیں لکھی ہیں۔ کچھ کتابیں میری نظر سے بھی گزری ہیں۔ ”جدید عربی ادب“ کے عنوان سے انہوں نے ایک معتبر مصری ادیب ڈاکٹر شوقی ضیف کی کتاب کا اردو میں ترجمہ کیا ہے جو عربی پڑھنے والے طلبہ اور اسکالروں کے لیے کافی مفید ہے۔ زیر نظر کتاب ”جدید عربی شاعری“ بھی اسی سلسلے کی ایک کڑی ہے۔ اس کتاب کا مسودہ میں نے جتہ جتہ دیکھا اور پڑھا ہے۔ انہوں نے بڑی محنت اور عرق ریزی سے یہ کتاب تالیف کی ہے۔ یہ کتاب جدید دور کے چند منتخب شعراء کے حالات زندگی اور ان کی شاعری کا تجزیہ ہمارے سامنے پیش کرتی ہے۔ اسلوب تحریر رواں، سلیس اور گفتنی ہے۔ ہمیں امید ہے کہ ڈاکٹر شمس کمال انجم اسی طرح اپنی تالیفات کے ذریعے اردو اور عربی کے نگار خانے کو سجاوے رہیں گے۔

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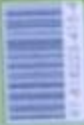
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# Performance Investigation of a Single-Phase Unidirectional Buck Converter for Improved Power Quality

Muzaffar Hussain<sup>1</sup>, Mubashir Ul Zaman<sup>2</sup>, Shahid Iqbal<sup>3</sup> and Shabana Urooj<sup>4</sup>

**Abstract** – AC/DC converters find use in numerous applications. Diode bridge rectifiers and phase controlled converters replace AC/DC converters in various applications, but their use is limited by their severe power quality problems like injection of harmonics in line current and flow of reactive power. A design of a AC/DC buck converter is proposed which improves the source power factor. The results are observed on oscilloscope and the model is realized through simulations also.

**Index Terms** – FRD, FFT, Harmonics, MOSFET, PWM, RL Load, Thyristor.

## NOMENCLATURE

FRD – Fast Recovery Diodes.

FFT – Fast Fourier Transform.

MOSFET – Metal Oxide Semiconductor Field Effect Transistor.

PWM – Pulse Width Modulation.

RL Load – Resistive

## I. INTRODUCTION

No practical power source can be ideal. Mostly, low power factor and harmonics are some of the problems being faced in electrical circuits. A load with Low power factor draws more current than a load with a high power factor for the same amount of useful power transferred. Also reactive power flow degrades the power quality which is caused by the poor supply power factor. AC/DC converters find use in numerous applications. Conventionally diode bridge rectifiers and phase controlled converters are used instead AC/DC converters, but their use is limited because of their injection of harmonics in line current and flow of reactive power. To avoid these problems, standards like IEEE-519-1992 and IEC-61000 series have been introduced which regulate THD and input power factor [1]. Due to these regulations, passive filters and active power filters have been used for power quality improvement. But they have some drawbacks which include their large size, rating, cost and complex control [1]. A new type of power converters called improved power quality converters have been developed which address power quality issues efficiently.

Fig. 1 shows the power circuit of unidirectional buck converter, which is used to improve the power factor [2].

Fast recovery diodes (FRD) are used to ensure that the diodes are turned off relatively fast [3]. The buck converter can be controlled in two ways:

- 1) Constant frequency operation or pulse width modulation control.
- 2) Variable frequency operation or frequency modulation control.

Here constant frequency operation is used in which the regulation of output voltage is achieved by varying the duty cycle of the switch, keeping the frequency of operation constant. This method is preferred because it leads to optimization of LC filter and the ripple content in the output voltage can be controlled within the set limits. Power quality is improved in terms of power-factor correction (PFC), reduced total harmonic distortion at input ac mains.

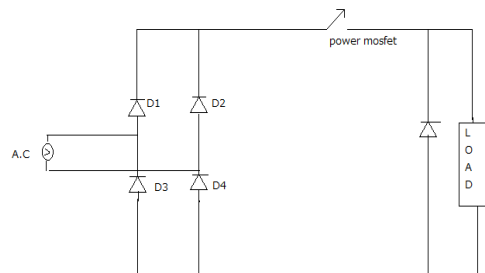


Figure 1: Power circuit for unidirectional buck converter

## II. UNIDIRECTIONAL AC/DC BUCK CONVERTER FOR IMPROVED POWER QUALITY

Conventional AC/DC converters using diodes and thyristors have demerits of poor power quality in terms of injected current harmonics, voltage distortion, poor power factor at input AC mains and slow varying rippled DC output at load end. New rectifiers using solid state self commutating devices such as MOSFET, IGBT, and GTO called converters or Switch Mode Rectifiers (SMR) are used to overcome the above problems [4]. The configuration is shown below

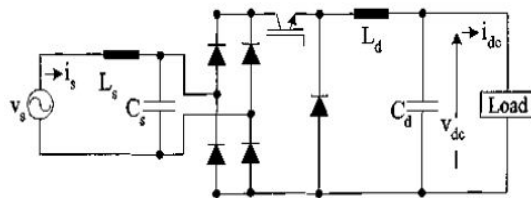


Figure 2: Removing of harmonics

It is a combination of diode rectifier with step down chopper with input and output filters. Its performance is improved using

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47	1569993555	Investigation on silver nanoparticles based plasmonic antireflection and its impact on electrical performance of mono c-Si solar cells	Hemant Singh
48	1570000203	Localized morphological change induced degradation in organic electronic devices	Praveen Ramamurthy
49	1570018879	VLS Growth of Silicon Nanowires in Cold Wall Cat-CVD Chamber	Sanchar Acharya
50	1570021423	A Novel Partially Insulated Junctionless Transistor for Low Power Nanoscale Digital Integrated Circuits	Ganesh Patil
51	1570025313	Analysis of reverse leakage current in differently passivated AlGaIn/GaN HEMTs	Anushree Tomer
52	1570026513	Electrical characteristics of post-gate annealed AlGaIn/GaN HEMTs on sapphire substrate	Somna Mahajan
53	1570026611	Effect of Traps on Small Signal Equivalent Circuit in AlGaIn/GaN HEMTs	Meena Mishra
54	1570026643	Size and Surrounding Medium Effects on Plasmonic Response of Au-Ag-Cu Nanospheres	Amit Bansal
55	1570026715	Dielectric optimization for Inkjet-Printed TIPS-Pentacene Organic Thin-Film Transistors	Subhash Negi
56	1570028899	Improved structural quality of GaN nanowall network grown on pre-nitrided c-sapphire	S. Shivaprasad
57	1569994973	Two Dimensional Analytical Model for Threshold Voltage of Graded-Channel SOI MOSFETs	Varun Goel
58	1569997333	Understanding evolution of electronic energy band in low turn on voltage DACz polymer diodes	Swathi K

59	1570019575	Growth mechanism and Electron Spin Resonance Studies of Zn <sub>1-x</sub> Ni <sub>x</sub> O/NiO Two-Phase Nanocomposite	Deep Joshi
60	1570020289	Synthesis and Characterization of Cd-doped ZnO Nanohybrids	Shruti Verma
61	1570020605	Influence of gate and drain bias on the bias-stress stability of flexible organic thin-film transistors	Sibani Bisoyi
62	1570020699	Metal Assisted Chemical Vertical Etching of Si: Effect of Catalyst Morphology and Oxidant Concentration	Deepu Bagur Rudrappa
63	1570021559	Large chiro-optical effect in stacked chiral metamaterials	Greshma Nair
64	1570021585	Study of growth of in situ Ga catalyzed AlGaAs nanostructures using MOVPE technique	Rajesh Bag
65	1570021623	Vertical Nanowire Transistor Based CMOS VTC Analysis	Satish Maheshwaram
66	1570024723	Material and Mechanical Characterization of PECVD a-SiC:H films with H <sub>2</sub> dilution	Adithi U
67	1570025279	Silicon on Ferroelectric Tunnel FET (SOF-TFET) for Low Power Application	Sangeeta Singh
68	1570028897	Growth of High Quality GaN Nanowalls on Si (111) Surface	Satish Shetty
69	1570028901	Growth of high quality InN films and nanorods grown on GaN nano wall network	S. Shivaprasad
70	1570020321	Modeling of Sheet-concentration and Temperature Dependent Resistivity of a Suspended Monolayer Graphene	Dipankar Saha
71	1570020541	What Decides the Mobility of Small Molecule Based Organic Semiconductors in Organic Thin Film Transistors?	Varsha Rani
72	1570021143	Analysis of Gate Leakage Current in Ultra Thin Oxide Grown by High Water Vapor Pressure Thermal Oxidation on 4H-SiC	Madhup Shukla
73	1570021519	Fabrication of free standing PEDOT:PSS nanofibers mat using electrospinning	Khadija Khanum
74	1570021631	Modeling of Temperature Effects in a Surface-Potential Based ASM-HEMT model	Sudip Ghosh
75	1570021675	Variability on the Chiro-optical Response of Helically Arranged Metallic Nanoparticles	Haobijam Singh
76	1570021753	Sensitivity analysis of tunable double microring resonator based intensity sensor	Prashanth Raghavendra Prasad
77	1570021349	Modeling of Gate-induced Drain Leakage mechanisms in Silicon-Germanium channel pFET	Vishal Tiwari

78	1569993035	Day-Ahead Prediction of Solar Power Output for grid-connected solar photovoltaic installations using Artificial Neural Networks	Muhammad Ehsan
79	1569996381	Organic nanocomposite sensor for detection of Escherichia coli	Praveen Ramamurthy
80	1570000327	High Field Effect Mobility of 10,000 cm <sup>2</sup> /Vs and 5,000 cm <sup>2</sup> /Vs in Undoped and Doped Monolayer Graphene Based Transistors	Premalata Yadav
81	1570020639	Traditional graphene based and junctionless carbon nanotube based field effect transistor for cholesterol sensor	Md Barik
82	1570021683	A Study on Current Vs Temperature effect of Gold Ribbon for Wire Bonding Applications in Power Devices	Shreesha Prabhu
83	1570024643	Electrical Characteristics of Pd/ZnO Nanowires (NWs) Based Schottky Diodes Grown on Zn Seed Layer Coated n-Si Substrates	Divya Somvanshi
84	1570026595	Single Step Fabrication of Nano-Structured Superhydrophobic Surfaces Showing Angle Dependent Colors	Abinash Tripathy
85	1570026653	Non-Axisymmetric Oscillations of Droplets in Electrowetting-on-Dielectric	Shubhi Bansal
86	1570026721	Performance Comparison of Bulk and SOI Planar Junctionless SONOS Memory	Rajesh Lodhi
87	1570026571	Subthreshold Analog/RF Performance Estimation of Doping-less DGFET for ULP Applications	Anup Kumar
88	1570014987	Thermal stability of single layer pulsed - DC reactive sputtered AlO <sub>x</sub> film and stack of ICP - CVD SiN <sub>x</sub> on AlO <sub>x</sub> for p - type c - Si surface passivation	Meenakshi Bhaisare
89	1570019429	A Drain-side Gate-underlap I-MOS (DGI-MOS) Transistor as a Label-free Biosensor for Detection of Charged Biomolecules	Kannan N
90	1570021521	Ab-initio study of doping versus adsorption in monolayer MoS <sub>2</sub>	Priyank Rastogi
91	1570021667	Graphene Nanobelts Films for Highly Sensitive, Transparent and Flexible Pressure and Strain Resistive Sensors	Stanislav Moshkalev
92	1570021469	One Dimensional Photonic Crystal Reflector using Silicon-rich Silicon Nitride and Silicon Oxynitride Multilayers for Solar Cells	Anishkumar Soman
93	1570021429	A Novel FinFET with Dynamic Threshold Voltage	Selwin Kumar Pushpadhas

94	1570026731	Power requirements of Sensing Nodes and Adequacy of Energy Harvesting	Rammohan Sriramdas
95	1570021567	Understanding non-Gaussian velocity fluctuations in helical nanopropellers	Arijit Ghosh



# Simulation study of the electrical behavior of bottom contact Organic Thin Film Transistors

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**Abstract—** Organic thin-film transistors (OTFTs) are making significant inroads into various large-area applications. Organic materials provide a low-cost alternative to silicon in the electronics industry as they can be fabricated at low temperatures and with high throughput on a wide range of unconventional substrates, such as glass, plastic, fabric and paper. This paper presents a simple 2D simulation study of the electrical characteristics of bottom-contact OTFTs. The pentacene has been used as the organic semiconductor in the active film. It has been demonstrated that the trap-density of states plays an important role in the device conduction mechanism and hence degrades the performance. The simulated results show similar trends with the experimental results which verify the accuracy of the models used for simulation of OTFTs. It is demonstrated that the field-dependent mobility behavior of OTFTs is correctly modeled by the Poole-Frenkel mobility model. Also, the band theory used for conventional MOS devices satisfies the charge transport mechanism in OTFTs.

**Index Terms—** Gain, OTFT, Transconductance, Subthreshold, TCAD, Traps.

## I. INTRODUCTION

Organic electronics provides an attractive research field due to wide range applications in low-cost, large area electronics. A wide range of organic materials have been used to develop the commercially available light-emitting diodes (OLED's) and organic photovoltaics (OPV's). Organic thin-film transistors (OTFT's) have also been developed to provide a low-cost alternative to silicon. OTFT's have paved the way for commercial use of flexible electronics. However, the device performance level of OTFT's cannot be comparable to those of inorganic counterparts [1]. The intention of using OTFT's in the electronics market is not of replacing silicon, but to provide a low-cost option in applications where device speed is not important. In order to optimize the device performance of OTFT's, there is a need to understand the device physics and operation mechanism of OTFT's. The low performance of OTFT's is attributed to the low mobility of carriers in addition to high density of traps. The study of the effect of traps on the device behavior provides a rich subject for research. OTFT's based on single crystal materials like pentacene, rubrene and tetracene etc., are being studied because of the high carrier mobility compared to amorphous organic materials. In this paper, a 2D simulation study of OTFT based on pentacene has

been carried out. The device configuration used is the bottom-contact OTFT. The effect of trap states on the electrical characteristics of the device has been studied. The device schematic and other parameters have been brought in from the literature.

## II. DEVICE SIMULATION AND PHYSICS

The schematic of the simulated bottom-contact OTFT is shown in figure 1(a). The device architecture has been adopted from the literature [2]. Figure 1(b) shows the simulated structure. The device structure consists of 200 nm of pentacene on 100 nm of silicon dioxide as gate insulator.

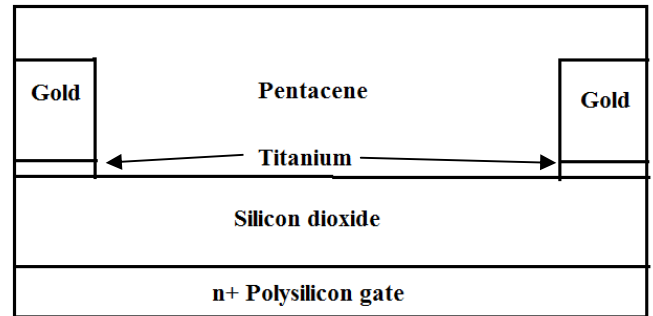


Fig. 1(a): Schematic of the Simulated Bottom contact OTFT structure.

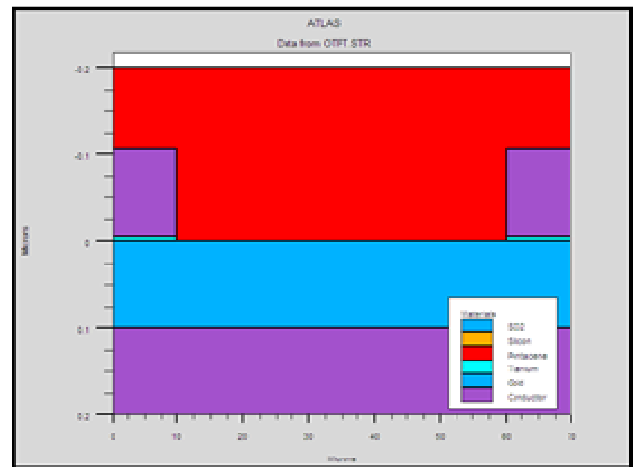


Fig. 1(b): Simulated 2D Bottom contact OTFT structure.