Criterion 6- Governance, Leadership and Management

6.3 Faculty Empowerment Strategies

6.3.2.Number of teachers provided with financial support to attend conferences / Research/ Workshop work for the Acadamic Year

Year	Name of teacher	Name of conference/ Research Work attended for which financial support provided	Name of the professional body for which membership fee is provided	Amount of support	Page No
2022-2023 ETC	Prof.Shilpa Pawar	ICIRMEEE	AMET University, Chennai	5000	1-2
2022-2023 MECH	Pritee Purohit	NA	IEI Membership	8260	3-4
2022-2023 COMP	Sharayu Lokhande	International Conference on Multi-Disciplinary Research Studies and Education (ICMDRSE-2022) Virtual Mode 26th-27th May 2022		14500	5-6
2022-2023 IT	Dr.Ashwini Sapkal	workshop on wirtting R&D grants praposal for womens engineers 2023	IIT,Gandhinagar	8334	7-9
2022-2023 ASGE	Dr. Seema Tiwari	Expenditure for analysis work		6400/-	10
2021-2022 ETC	Dr.Sushma Patil	FDP	Electronics and ICT	5000	
2021-2022 MECH	S M Gaikwad	ISHMT-ASTFE Heat and Mass Transfer Conference	NA	7186	11-12
2021-2022 COMP	Prof Vaishali Ganganwar	Reimbursment of Paper		13100	13-23
	Prof Sharayu Lokhande	3rd IEEE Conference of emerging smart computing & informatics 2021		5000	24-26
2021-2022 IT	Prof.Vaishali Ingale Prof.Rupali Bagate	Papper published in nternational Conference on Communication and Information Processing 2021	Nutan COER,Pune	13000	27-30
2021-2022 ASGE	Mr. Vitthal Hivrale	International Conference on Smart Innovations for Society "ICSIS-2022"		5000/-	31-32

	Mr. Rushikesh Patil	International Conference on Smart Innovations for Society "ICSIS-2022"		5000/-	33-34
2020-2021 ETC	Mr Vijaykumar Karra	AICRE Vishwakarma Awards Regional Convention at Bhopal	AICRE	7,783	35-36
	Ms Shilpa Devram Pawar	5th International conference on communication & Electronics System	ICOCES	7000	37-38
2020-2021 MECH	Nil	Nil	Nil	Nil	-
2020-2021 COMP	Prof. N Singhal	Reimbursment of Patent		5000	39-40
2020-2021 IT	Prof.Rupali Bagate	Publishing paper in International Conference on Pervasive Computing 2020	SKNCOE,Pune	8000	41-42
2020-2021 ASGE	Dr Seema Tiwari	XRD,TGA,DSC,FTIR & TEM		17,896/-	43-45
		3rd International conference, VIT Vellore	VIT	8500/-	
2019-2020 ETC	Dr.Harjeet Kaur	Python Workshop	IIT Bombay	6500	46
	Dr.P.B .Karandikar	Paper Presentation	ICCCCES MEA Engg.College Kerla	6853	49-53
		Paper Presentation	IEEE Conference		
2019-2020 MECH	S M Gaikwad	ISHMT-ASTFE Heat and mass transfer conference	NA	18000	54-55
	J D Patil	25th National and 3rd International ISHMT-ASTFE Heat and mass transfer conference	NA	26535	56-57
2019-2020 COMP	Nil	Nil	Nil	Nil	-
2019-2020 IT	Dr. Ashwini Sapkal	2nd International Conference on Soft Computing & Signal Processing	ICSCSP 2019	10390	58-59
	Prof.Aparna Joshi	International Conference on Emerging Technologies in Computer Engineering 2019	ICETCE 2019	18701	60-63
	Prof.Rupali Bagate	International Conference on Intellegent data communication technologies and Internet of Things 2019	ICICI-2019	7500	64-66

	Dr. Ashwini Sapkal	CSI Annual Convention 2020	KIIT Bhuvneshwar,Odisha	14543	67-72
2019-2020 ASGE	Dr Ganesh Mundhe	PCDMAN		9425/-	73-74
	Dr. Seema Tiwari	Workshop on IPR at RGNIIPM	RGNIIPM	9060/-	-
		International conference		6000/-	
2018-19 ETC	Prof.Sushma Wadar, Mr.Avinash Patil	IEEE Conference, Chennai	Conference	19624	75-79
	Dr.G.R.Patil	MOOC Course Certification		7127	80-81
		National Convention of AICTE-ECI-ISTE			
2018-2019 MECH	S M Gaikwad	FMFP-2018 7th International and 45th National Fluid Mechanics and Fluid Power Conference	NA	8728	82-83
	J D Patil	NSCS-27 27th National symposium on cryogenics and superconductivity	NA	9320	84-85
2018-2019 COMP	Prof. Sagar Rane	TWDS Paper		6000	86-87
	Dr S R Dhore	Publication of Paper IEEE		6000	88-92
2018-2019 IT	Prof.Ashwini Sapkal	Publish paper in ICACC-2018	ICACC-2018	14331	93-94
2018-2019 ASGE	Nil	Nil	Nil	Nil	-

Date :

Army Institute of Technology(College Fund New)
Dighi Hills,Alandi Road,Pune-15
Ph No 02027157534
State Name : Maharashtra, Code : 27

Payment Voucher

No. : **1140** Dated : **6-Dec-22**

Particulars	Amount
Account :	
Shilpa Pawar (Cr)	**5,000.00**
Agst Ref **1304** **5,000.00 Dr**	

Through :
ICICI BankSaving A/c 215201000341

On Account of :
Being Remibursement of Registration & publication Fees (Paper ICIR NEEE 2021)

Amount (in words) :
INR Five Thousand Only

₹ 5,000.00

Receiver's Signature:

Authorised Signatory

6/12/22

Put up for approval of payment please

Joint Director

Director

7/12/22


BEST PAPER AWARD
AMET
ACADEMY OF MARITIME EDUCATION AND TRAINING
Deemed to be University Under Section 3 of UGC Act 1956
International Conference On
Innovations and Research in Marine Electrical and Electronics Engineering
ICIRMEEE 2021
Best Paper Award
This is to certify that Mrs. Shilpa Pawar of
Army Institute of Technology , Pune has received a Best Paper Award for the
paper entitled Deep Learning Watershed Algorithm To Calculate Cardiac Stroke Volume Of The Left Ventricle For The Analysis To Detect Person Suffering From Cardiac Vascular Diseases Using Cardiac MRI Data in the "Two Days International e-Conference on Innovation and Research in Marine Electrical and Electronics Engineering (ICIRMEEE 2021)" organized by the Department of Electrical and Electronics Engineering, AMET Deemed to be University, Chennai – 603 112, on 17th & 18th June 2021.
Dr. T. Sasilatha
Dean- EEE
Dr. M. Jayaprakashvel
Registrar i/c
ICIRMEEE 2021

Army Institute of Technology(College Fund New)
Dighi Hills,Alandi Road,Pune-15
Ph No 02027157534
State Name : Maharashtra, Code : 27

Payment Voucher

No. : **538** Dated : **23-Aug-22**

Particulars			Amount
Account :			
The Institute of Engineers (India)			**14,160.00**
Agst Ref **648**	**14,160.00**	**Dr**	
Preeti Purohit (Cr)			**8,280.00**
Agst Ref **648**	**8,280.00**	**Dr**	
K Sekhara Pillai 1628			**25,105.00**
Suyoug Photography			**2,000.00**
Agst Ref **647**	**2,000.00**	**Dr**	
M/s Cherish Hospitality Services(I) Pvt Ltd			**1,575.00**
Labour Payment Payable			**17,700.00**
New Ref **540**	**17,700.00**	**Dr**	
Through :			
Bank of Baroda Savings A/c 12490100001250			
On Account of :			
cH NO-006078 Issued To Neft Towards Membership Payment,Refund Of security deposit Yoga Day Payment Labour Payment			
Amount (in words) :			
INR Sixty Eight Thousand Eight Hundred Twenty Only			
			₹ 68,820.00

Receiver's Signature: Authorised Signatory

Accountant
Army Institute of Technology
Dighi Hills, Pune-411015

M-1764535

The Institution of Engineers (India)

MEMBERSHIP

CERTIFICATE

This Certificate of
Member is Granted to
PRITEE MANOJ PUROHIT

on Twenty Fourth day of
August Two Zero Two Two

In witness where of the said Institution has caused its Common Seal to be affixed on this

Twenty Fourth day of August Two Zero Two Two

Secretary and Director General

Note: The is a e-certificate auto-generated by system hence valid without signature.

Army Institute of Technology(College Fund New)
Dighi Hills,Alandi Road,Pune-15
Ph No 02027157534
State Name : Maharashtra, Code : 27

Payment Voucher

No. : **451** Dated : **1-Aug-22**

Particulars	Amount
Account :	
Sharayu Lokhande (Cr)	**14,500.00**
Agst Ref **542** **14,500.00 Dr**	

Through :
ICICI BankSaving A/c 215201000341

On Account of :
Being Reimbursement for paper presentation & publication

Amount (in words) :
INR Fourteen Thousand Five Hundred Only

₹ 14,500.00

Receiver's Signature: Authorised Signatory

Put up for approval / signature please

Joint Director

Director

CERTIFICATE

OF PRESENTATION

5TH INTERNATIONAL CONFERENCE ON MULTI-DISCIPLINARY RESEARCH STUDIES AND EDUCATION (ICMDRSE-2022)

26TH - 27TH MAY 2022 | VIRTUAL CONFERENCE

Certificate No.IFERP20222705-0727

This is to Certify that **Sharayu Lokhande** of Army Institute of Technology ,Savitribai Phule Pune University presented his/her research paper titled Automated Subjective Answer Evaluation System

in the "5th International Conference on Multi-Disciplinary Research Studies and Education (ICMDRSE-2022)" organized by Institute For Engineering Research and Publication (IFERP) held on 26th & 27th May 2022 as Virtual Conference.

Prof. Michalis Toanoglou
Professor in
Hospitality & Tourism Development
of International Programs,
Jeonju University, South Korea

Prof. Dr. S. Naga Rajan
Principal & Professor,
Department of Electrical Engineering,
Surendra Institute of Engineering and
Management, Dhukuria, West Bengal

Dr. Bhanu Pratap Singh
Vice Chancellor,
Maharishi University of
Information Technology-MUIT,
Lucknow, India

Dr. Noor Zaman Jhanjhi
Director & Associate Professor,
Center for Smart Society 5.0 [CSS5],
Cluster Head – Cyber Security Cluster,
Taylor's University, Malaysia

Mr. Rudra Bhanu Satpathy
CEO & Founder
Institute For Engineering Research and
Publication (IFERP)

Department of Information Technology

Minute sheet

Case No AIT/IT/1351/staff

Sheet No - 01

1. Indian National Academy of Engineering is organizing workshop on "WRITING R&D GRANT PROPOSALS FOR WOMEN ENGINEERS" on February 23-24, 2023 at Indian Institute of Technology Gandhinagar. The brochure and schedule of the event is attached in flag 'A'
2. 30 Women from the states of Goa, Gujarat, Madhya Pradesh, Maharashtra, and Rajasthan are selected based on the academic merit and research plan of applicants.
3. Dr Ashwini Sapkal has applied and shortlisted for the said workshop. The workshop has **No registration** fees. It is requested to sanction 3 days On duty leave to her from 22nd Feb to 24th Feb 2023. Her load will be adjusted during the mentioned period. (The selection letter is attached in flag 'B')
4. It is also requested to approve the travelling charges to Dr Ashwini Sapkal as per the AIT policy. The total travelling cost is Rs 8334. Tickets are attached in flag 'A'
5. Put up for your kind perusal and approval please

As per policy

SSJadhav 17/2/23

Dr Sangeeta Jadhav
Department Of Information Technology

Principal 17/02/2023

Jt Director 20/2/23

Director
1. Approved.
2. She must conduct an FDP for AIT women faculty on return.

20/2/23

To Dr. Ashwini
Can conduct session Of 8th March :- SSJadhav
3rd March-23.

PTO

1782
17/2
4000
17/2

Minute Sheet

PV/1772

Case No. AIT/IT/ /

Sheet No. Dt 24/3/23

Please refer ante

1. Dr Ashwini Sapkal has successfully completed the two days workshop conducted by SERB at IIT Gandhinagar on 23rd and 24th Feb 2023.
2. It is requested to reimburse her travelling expenditure as per the AIT policy.
3. She will be conducting the session on 31st March at B C J Hall from 3.30 – 5.00 PM.
4. Put up for your perusal and approval please.

Dr Sangeeta Jadhav
17/3/23
Dr Sangeeta Jadhav
HOD IT

Principal
17/03/2023

Jt Director
17/3/22

Director
1. Agreed.
2. Pl to note.
noted

20/3/23

The Acct. Section

ch No- 006322 issued to Neft Rs- 8334 Dt. 24/3/23

2054
17/3

Principal Office
S No. 4140
Dt 17/3
Sign

Workshop on

WRITING R&D GRANT PROPOSALS FOR WOMEN ENGINEERS

February 23-24, 2023

Indian Institute Of Technology Gandhinagar

Scan the QR for application form

Application deadline:
January 27,2023

No registration fee

Key Resource Person:

Dr.Rajiv K. Tayal, FNAE
Formerly Scientist-G, DST
Science and Engineering Research Board
Executive Director, Indo-US S&T Board

Army Institute of Technology(College Fund New)
Dighi Hills,Alandi Road,Pune-15
Ph No 02027157534
State Name : Maharashtra, Code : 27

Payment Voucher

No **1371** Dated **16-Jan-23**

Particulars		Amount
Account :		**6,400.00**
Seema Tiwari (Cr)		
Agst Ref **1541**	6,400.00 Dr	

Through :
ICICI BankSaving A/c 215201000341

On Account of :
Being Reimbursement of research paper & one pateent pulished 2022-23

Amount (in words) :
INR Six Thousand Four Hundred Only **₹ 6,400.00**

Receiver's Signature

Authorised Signatory

16/11/23

Put up for ... ...ieas

Joint D...

Director

16/11/23

2021-22

Army Institute of Technology(College Fund New)
Dighi Hills,Alandi Road,Pune-15
Ph No 02027157534
State Name : Maharashtra, Code : 27

Journal Voucher

No. : **798** Dated : **17-Nov-21**

Particulars		Debit	Credit
Faculty and Students R &D Expenses	Dr	**7,186.00**	
To Sanjay Giakwad New Ref 792 7,186.00 Cr			**7,186.00**
On Account of : Being Reimbursement of registration fees (Registration Fees IHMTC(International & National Heat & Mass Transfers Conference)			
		₹ 7,186.00	**₹ 7,186.00**

Authorised Signatory

5


Indian Society for Heat and Mass Transfer (ISHMT)
American Society of Thermal and Fluids Engineers (ASTFE)
26th National and 4th International
ISHMT-ASTFE
Heat and Mass Transfer Conference
(IHMTC 2021)
17th-20th December, 2021
Organized by IIT Madras
Certificate of Participation
This is to certify that
SANJAY GAIKWAD
has participated in the 26th National and 4th International - ISHMT-ASTFE
Heat and Mass Transfer Conference (IHMTC 2021),
17th - 20th December, 2021
Prof. T Sundararajan
Organizing Chairman
Prof. Arvind Pattamatta
Organizing Secretary
Prof. Ashis Sen
Organizing Secretary

Army Institute of Technology(College Fund New)
Dighi Hills,Alandi Road,Pune-15
Ph No 02027157534
State Name : Maharashtra, Code : 27

Payment Voucher

No **246** Dated : **28-Jun-21**

Particulars	Amount
Account :	
Students Club Activities /Scholarship to Students	**4,000.00**
Faculty and Students R&D Expenses	**13,100.00**
Maint of Civil Asset/Bldg	**7,800.00**
Pay and Allowances of AIT Staff	**18,000.00**
Pay and Allowances of AIT Staff	**21,160.00**
Pay and Allowances of AIT Staff	**17,200.00**
Pay and Allowances of AIT Staff	**17,510.00**
Through :	
Bank of Baroda Savings A/c 12490100001250	
On Account of :	
Ch No -565066 Issued To Yourself For Neft Towards Salary Payment Month Of June 2021 & Pump house extra duty Payment, Reimbursement of paper Publication Fees	
Amount (in words) :	
INR Ninety Eight Thousand Seven Hundred Seventy Only	**₹ 98,770.00**

Receiver's Signature

Authorised Signatory

ARMY INSTITUTE OF TECHNOLOGY
Dept. of Comp. Engg.
PUNE-15

Turkish Journal of Computer and Mathematics Education Vol.12 No.6 (2021), 4979-4987

Research Article

Sentiment analysis of legal emails using Plutchik's Wheel of Emotions in quantified format

Vaishali Ganganwar[a], Nihal Babu[b], Pooja Kudale[c] , Rohit Singh[d], Sandesh Tanwar[e]

[a,b,c,d,e] Department of Computer Engineering, Army Institute of Technology, Pune, India

Article History: Received: 10 November 2020; Revised 12 January 2021 Accepted: 27 January 2021; Published online: 5 April 2021

Abstract: Sentiment analysis, which automatically extracts expressions from text, has gained a great deal of analysis attention within the past decade. Sentiment analysis for social networking sites has become an emerging field in text mining, however once we quote email that is wide employed in communication in our everyday tasks analysis into email sentiment analysis isn't to identical proportion. Earlier very less work has been done in extracting emotions from emails. The aim of this paper is to perform sentiment analysis and quantify the emotional intentions expressed in emails and highlighting the dominant one by using Machine learning models like Naïve Bayes, Support vector machine (SVM), RNN (Recurrent Neural Network), Convolution Neural Network (CNN), Word2Vec and comparing the performance of these model. We have classified the emotion into eight totally different classes of the Plutchik's emotion wheel: joy, trust, fear, surprise, sadness, expectation, anger, and disgust. we have used TF-IDF (Term Frequency Inverse Document Frequency) for feature extraction, to train Naïve-Bayes classifiers and SVM. We have trained all our models on Dens-Dataset and predict emotions from the document passed to that later, which resulted in achieving maximum accuracy using RNN. Dens-Dataset has 10,710 entries containing emotions, which are in Plutchik's wheel.

Keywords: Sentiment Analysis, Emotion Classification, NLP (Natural Language Processing), Plutchik Wheel, Emails, Dens-Dataset

1. Introduction

Email is one amongst the foremost reliable means that of on-line correspondence and has become an especially important means that of official communication for many organisations and people. Within the company world, folks use email as a proper technique of human activity with their customers or sharing their opinions. With the increasing use of email, prioritising associated organising emails is turning into an insurmountable task. A common user spends a big quantity of your time reading, understanding, and responding to emails. Filtering emails based on emotions will reduce efforts and save time.

We have focused on finding the emotions present in the email and quantifying them also highlighting the dominant one. A lso, to narrow down the emotions to a limit we are using Plutchik's wheel and have took 8 prominent emotions from it which are: anger, expectation, disgust, sadness, joy, trust, surprise, fear.

Robert Plutchik took eight emotions of basic categorised as basic and eight other emotions categorised as advanced, each one contains 2 basic emotions and created an emotion wheel. Aggression, contempt disappointment, submission, optimism, remorse, awe and love are the advanced unit of emotions formed by the following 8 fundamental unit of emotions anger, expectation, disgust, sadness, joy, trust, surprise, fear.

Varied approaches like reaction, visual communication, facial expressions, etc. can be used for detecting emotion. However, the utilization of text desires a lot of improvement. And email was not in focus while finding out emotions from text.

Various algorithms like NB, SVM, CNN, RNN, Word2Vec are matched mistreatment experimental results. The dataset employed in this paper is named Den's dataset. The analysis is considered as classification. The complete implementation is completed in Python.

Highlights of this paper are as follows:

- Using Plutchik's wheel of emotions for emotion analysis.
- Focused on emails and finding out the emotions present in email.
- Quantification of emotions from the emails and highlighting the dominant one.
- Used Naive Bayes, Word2Vec, SVM, RNN, CNN methods to find of emotions.
- Comparing the accuracy and f1 score of the above-mentioned methods.

The schema of this paper is delineated as follows. Second section provides an outline of previous analysis and work done on sentiment and feeling analysis. Third section defines Dataset and its statistics. Fourth section

defines emotion classifications and Plutchik's wheel. Fifth section defines Pre-processing and Methods used and their accuracies. Finally, Section six summarises the findings, limitations, and future work of this paper.

2. Related Work

In the recent years with the increasing importance of emotion or sentiment analysis/detection in text, audio, or videos feed (facial expressions) the field has been an area of research by data analysts. But here as we focus on the emotion detection on text, the road has been rather bumpy because of the nature of the problem itself. Walking towards the target the first task is to choose the framework considering the sentiment or emotion. Previously in this area **Rayan Salah Hag Ali** and **Neamat El Gayar** [1] made utilisation of the Enron email dataset to train the classifier. Then implemented TF-IDF for feature extraction, to train Naïve Bayes and Support vector machine (SVM) classifiers.

LSTM (Long Short-Term Memory) based approach on sentiment classification was proposed by **Dr. Gorti Satyanarayana Murty** and **Shanmukha Rao Allu** [2]. The distinguished feature provided by LSTM is that it generates output at every step taken or time and this output obtained is utilised to train the network using gradient descent. Looking at performance of LSTM we see a significant accuracy of 85% in emotion detection with the condition that more training data is provided to the model. Tool SENTA can be handed down to investigate the practicability of numeric form categorization by performing it on a dataset which consist of tweets distributed under 11 different sentiment classes by **Mondher Bouaziziand Tomoaki** [3]. The tweet dataset is manually annotated, and the result so obtained was compared against human annotations and the F1 score obtained after completion of experiment was 45.9%. **Muhammad Babar Abbas** and **Mukarram Khan [4]** performed sentiment detection using various algorithms, their main purpose was to choose a suitable algorithm to be utilized in automatic email response system. The performance of Naïve Bayes, SVM, FNN (Forward Neural Network) and RNN algorithms were compared with each other. The accuracy of RNN improved with each epoch to a final of 87% where it started with 26% only at the first epoch.

A different approach of creating a vast collection of tweets labelled wih Plutchik's, Ekman's and POM's classification of sentiments was done by **Niko Colneric** and **Janez Demsar**[5]. RNN was able to perform better than the mark set by common bag of words model. Research suggests that it is best to train RNN on sequence of characters rather than on sequence of words. Using this approach, the model gives much accurate results and no pre-processing or tokenisation is required. A hybrid sentiment analysis model formed by combining K-means clustering and SVM was formed which took Email data as dataset was performed by **Sisi Liu** and **Ickjai Lee** [6]. This approach gave better results in terms of accuracy as compared to SVM, NB, LR and J48. Thereby making the combined K-means and SVM algorithm the suitable algorithm for our problem statement.

3. Dataset

The dataset that has been used in this paper is Dens-dataset [7]. DENS stands for Dataset for Emotions of Narrative Sequences. It was collected from each classic literature out there on Project pressman and fashionable on-line narratives out there on Wattpad, annotated victimization Amazon Mechanical Turki.

Dataset contains 10710 passages extracted from on-line narratives on Wattpad and literature on project Johannes Gutenberg and categorised into 8 broad emotions that are anger, joy, sadness, anticipation, surprise, fear, disgust and trust. Fig 1 shows email passage samples from the dataset.

Text	Label
I found this was a little too close upon him, but I made it up in what follows. He stood stock-still for a while and said nothing, and I went on thus: "You cannot," says I, 'without the highest injustice, believe that I yielded upon all these persuasions without a love not to be questioned, not to be shaken again by anything that could happen afterward. If you have such dishonourable thoughts of me, I must ask you what foundation in any of my behaviour have I given for such a suggestion?"	Angry
She stretched hers eagerly and gratefully towards him. What had happened? Through all the numbness of her blood, there sprang a strange new warmth from his strong palm, and a pulse, which she had almost forgotten as a dream of the past, began to beat through her frame. She turned around all a-tremble, and saw his face in the glow of the coming day.	Anticipation
Ah! That moving procession that has left me by the road-side! Its fantastic colors are more brilliant and beautiful than the sun on the undulating waters. What matter if souls and bodies are failing beneath the feet of the ever-pressing multitude! It moves with the majestic rhythm of the spheres. Its discordant clashes sweep upward in one harmonious tone that blends with the music of other worlds–to complete God's orchestra.	Joy

Fig 1: sample email passages from Dens Dataset

Dataset for Emotions of Narrative Sequences (DENS). The DENS dataset contains a total of 10710 passages that are unit narratives, the common sentences per passage is half-dozen or half-dozen sentences per passage. Also, the common word gift in every sentence is sixteen i.e., sixteen words per sentences. and therefore, the average length of eighty-six words.

The size of this dataset is 4.5 mb. It has total 10,710 entries with totally different emotions. There are unit eight classes of emotions gift in this dataset. These are unit anger, joy, sadness, anticipation, surprise, fear, disgust and trust. Fig 2 shows number of samples per class in Dens dataset. The entries that are unit gift within the passages of multi-class feeling analysis are unit long-form recital in English. From classic literature on the market on Project Gutenberg and fashionable on-line narratives on the market on Wattpad, annotated mistreatment Amazon Mechanical Turki the dataset (DENS) for sentiments of Narrative Sequences was collected.

Emotions	Number of samples
Joy	3301
Trust	2130
Fear	1313
Surprise	1302
Sadness	880
Disgust	722
Anger	596
Anticipation	466

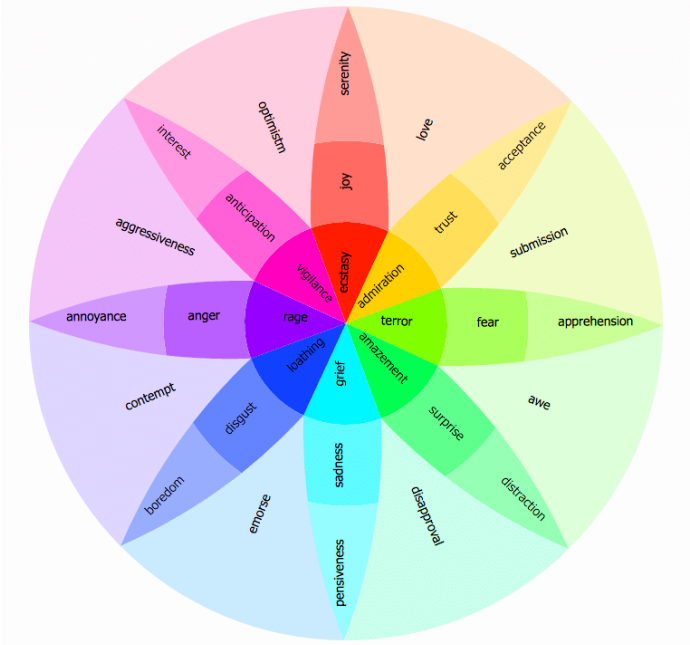
Fig 2: Dens dataset statistics

4. Emotion Classification

Paul Vagn Walfrid Ekman designed a stock of six salient emotions based on facial expressions: joy, disappointment, disgust, anger, surprise and fear. A wheel-like diagram was traced by Robert Plutchik with a stock of eight salient contrastive emotions pairs: trust - disgust, joy - sadness, surprise – anticipation and fear-anger. We tend to treat every of those emotions as a independent class also ignore the various degree of intensity identified by Plutchiks wheel of emotion. The Mood States Profile may be a psychological tool for assessing a human state of mood. Sixty-five adjectives are recognized and rated on a five-point-scale by the topic. Every adjective fall into one in every of six classes. Looking at instance, feeling irritated includes a positive impact on the anger class. The upper the score of associate degree adjective, a lot of it contributes to the general score for its

class, except for relaxed and effective, whose contribution to the freelance classes is negative. we've removed the adjectives relaxed and economical, that have a negative contribution, because of the text containing them would represent counter examples to the relevant class.

From now on, we will refer to these classifications and go on with Plutchik's wheel.



Plutchiks Wheel of Emotions: The dataset is elucidated on transformed Plutchiks wheel of emotions. The original Plutchiks wheel includes eight primary emotions: Surprise, Joy, Disgust, Sadness, Anger, Trust, Fear, Anticipation, Trust. Also, a lot of complicated emotions can be shaped by fusing two salient emotions. Consider Love which can be outlined as a mixture of Joy and Trust. Anger will vary from the emotion of Annoyance (modest) to Rage (temper). Plutchik's wheel also represents the intensity of a feeling.

5. Methodology

The modeling process of our product is divided into two prominent parts.

1. Data Preprocessing part

2. Machine Learning models

5.1 Data Preprocessing

We have applied following text preprocessing steps.

Lowercasing: Lowercasing all of your text information in text preprocessing is useful and applicable to many texts mining and informatics issues and may facilitate in situations wherever your dataset is not terribly giant and considerably helps with consistency and uniformity to expected output.

Tokenization: Tokenization is a technique of breaking a given text into tiny chunks that may be words or sentences known as tokens. These tokens create some type of context or develop some informatics models. We tend to separate the sentences into words as we want to perform stemming and stop word removal techniques which might create the natural language processing economical.

For eg: "Shirt with dogs and cats" ----Apply Tokenization----> ["Shirt", "with", "dogs", "and" "cats"]

Stop Word Removal: Words that give no meaning to the data but are used to join couple of words are known as stop words like "and", "the" etc. that don't highlight a exact meaning and therefore they must be removed.

For eg: ["Shirt", "with", "dogs", "and" "cats"] ---Apply Stop Word Removal----> ["Shirt", "dogs", "cats"]

Notice that "and", "with" words are removed within the output.

Stemming: In order to understand the meaning of the word distinctly the suffix part of it is removed and the word is reduced to its root word, the process is known as stemming.

For eg: [“Shirt”, “dogs”, “cats”] ---Apply Stemming---> [“Shirt”, “dog”, “cat”]

Notice that the “s” prefix of “cats” and “dogs” are removed within the output.

Normalization:

Text normalization is a highly look-over pre-processing technique. It is the method of mutating the text into standard form. Take an example, the word “gooood” and “gud” is remodeled to “good”, its standard type. One more example is mapping of close to similar words like “stopwords”, “stop-words” and “stop words” to merely “stopwords”.

5.2 Machine Learning models

In this part we have implemented some of the most prominent machine learning model after doing intensive literary review in the field of sentiment analysis and emotion analysis. The results produced and the working mechanism encourage us to select all these models out of all present in the emotion analysis realm. Our task over here is to test the model with our database in hand and check the accuracy/performance of all the model. Our final decision comes on output but also the form in which the output is obtained, thereby finalizing one model to be used in the final project stage.

Method 1: Naïve Bayes’ Classifier

A machine learning algorithm Naive Bayes is used to solve problems based on classification. It uses Bayes Theorem assuming all independent predictors. Naive Bayes is time efficient and is appropriate for multiclass classification. It makes assumption of feature independence which if holds true then it performs a cut above other model. Training data required for this model is less. It works more efficiently for variables with categorial input than numerical. The beginning points of the Bayes theorem of conditional probability, states for a given data point q and D class:

$P(D / q) = P(q/D) / P(q)$

For a data point we assume that

q= {q1, q2 ,...qj}, The probability can be estimated for x by considering the probability of each of its traits that occurs in the provided class as independent, consider:

$P(D / q) = P(D) . \prod P(qi/D)$

After dividing the dataset into 8:2 ratio as training and testing data we get an F1 score of 0.32.

Method 2: Support Vector Machine

Support Vector Machine is supervised machine learning algorithmic program which will be used for each regression or classification challenges. SVM performs classification by finding the hyper-plane that differentiate the categories we tend to aforethought in n-dimensional house. SVM attracts that hyperplane by reworking our knowledge with the assistance of mathematical equations known as “Kernels”. SVM try and highlight words that square measure additional attention-grabbing, e.g., recurrence during a document however not across documents, thus help us to encode as much as information as possible from text. We have created a Radial basis perform kernel (RBF)/ mathematician Kernel SVM classifier that may be a standard Kernel technique it is a perform whose worth depends on the space from the origin or from some purpose.

Following is format of Gaussian Kernel:

$$K(X_1, X_2) = exponent(-\gamma \|X_1 - X_2\|^2)$$

$||X_1 - X_2||$ = Euclidean distance between X_1 and X_2

Using the Euclidean distance in the original space, we obtained the dot product that is similarity of X_1 and X_2. After implementation we got an F1 score of 0.33

Method 3: Convolutional Neural Network

CNN is the part of Supervised Deep Learning Algorithm. CNNs the first supervised learning algorithm to successfully get trained on multilayer network structure. CNN use spatial relation to decrease the number of parameters and to improve the training performance and accuracy. Its schema is multilayer convolution.

Advantages of CNN

CNN are the regularized version of multilayer perceptron. It means fully connected network, and each neuron of one layer is connected to all the neurons present in the next layer. This full connectivity helps this neural network to prone overfitting of data. It requires very less preprocessing as compared to other classification algorithms.

Because of little preprocessing it reduces the human efforts in developing and building its functionality

CNN have a very different approach to do regularization. It takes hierarchical pattern advantage and aggregate patterns of rising complexity using kernel that pulvinate in its filters.

The Pooling layer of CNN are responsible in reducing the spatial size of the convolved feature. It helps to decrease the computational power and helps to extract dominant features, which is rotational and invariantly to the position. There are two types of pooling: 1. Average Pooling 2. Max Pooling. We are using Max Pooling in our model. Max Pooling also helps in noise suppression, so it is better than average pooling.

Also, CNN has highest accuracy among all the algorithms that are used in prediction of image classification.

Our CNN Model

We have designed a CNN model which will train on our Dens-Dataset and will predict the emotions from the document given to it later. We have used Keras-Encoder to encode the textual data, and Keras -Tokenzier to divide a text in tokens. The dataset has been distributed in 2:8, 80% for training and 20% Testing. Epochs was set to 100.

CNN Model consists of

1Embedding Layers

2 Convo 1D

3 Global max Pooling

4 Dropout

5 Dense

The architecture is shown in fig 3. We got the accuracy of 24.59 % using this model.

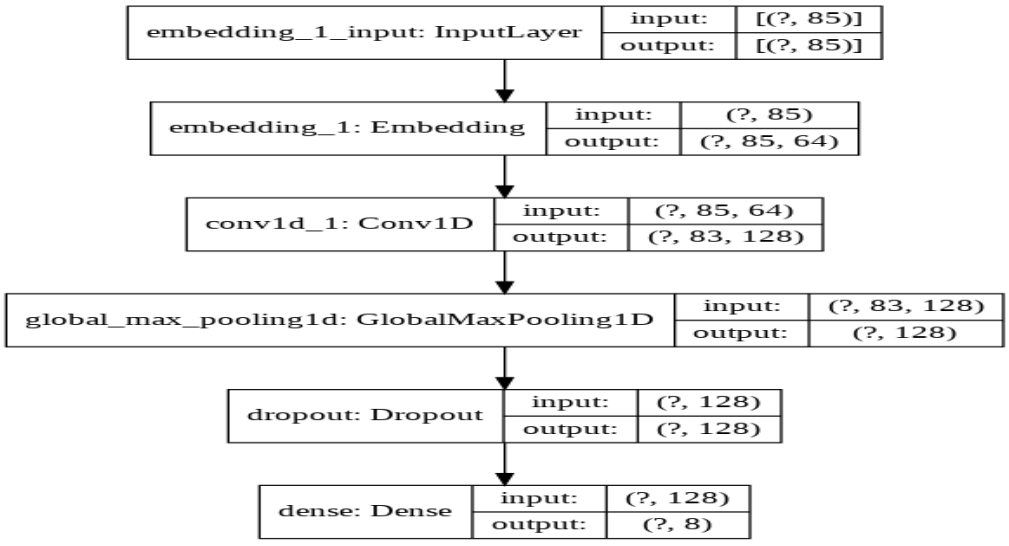


Fig. 3: CNN Model architecture

Method 4: Recurrent Neural Network

Recurrent (RNN) was chosen since it will naturally handle texts of variable length, as a result it has already shown its efficiency for text classification. It tends to experiment with 2 levels of graininess. Within the 1st approach, we tokenise the text and so introduce a concatenation of tokens into the RNN. For predicting emotions, a suitable representation of text is obtained by combining words by RNN. Thus, the task of Neural Network is to mix the characters into an appropriate illustration and to predict sentiments. Note that the RNN itself must

understand that character sequences forms words, since a space isn't handled different from the other character. One advantage of the symbolic approach is that it does not need enough pre-processing and normalization.

When operating with words, Firstly, we have used tokenizer to separate the text into tokens. Next, we have got to remove the normalization drawback. Morphological variations that is internal structure of words area unit similar enough that we can use an identical token to represent them for instance, because the same token within the character settings, of these selections area unit left to the RNN's discretion. Concatenation of words or characters area unit 1st mapped into vectors, that is typically referred to as embedding. RNN is good with sequential data, because layers it uses it equipped with short term memory. And it uses these layers for accurate prediction. In the last is SoftMax layer for multinomial output.

Method 5: Word2Vec and LSTM

We applied a integrated method implementing Word2vec and LSTM model. The wiki-news pre-trained vector model is used as word embedding. Large-scale corpora can be trained by word2vec and produces word vectors of low dimension. It contains Continuous Bag of word and Skip-gram. Then LSTM is fed by trained vectors for further classification.

Architecture:

(X) Text -> Embedding (W2V pretrained on Wikipedia articles) -> Deep Network (LSTM/GRU) -> Fully connected (Dense) -> Output Layer (SoftMax) -> Emotion class (Y)

Embedding Layer

Word Embedding is giving homogenous representation to the texts with relatable interpretation. We have used word vectors pre-trained on Wikipedia articles having 300 dimensions. We could have used our dataset to train w2v model but due the small size of the dataset the efficiency won't match that of the pretrained w2v.

Deep Network

The progression of embedding vectors is set as input to Deep network and is then converted into its compact representation. All the particulars present in course of words in the text are functionally recorded in compact representation. Deep Network section is conventionally an RNN or some forms of it like LSTM/GRU.

Fully Connected Layer

The deep representation deriving out of RNN/LSTM/GRU is grabbed by fully connected layer to convert it into class scores or concluding output classes. This module includes fully connected layers in addition to batch normalization spontaneously dropout layers for normalization.

Output Layer

Output layers have SoftMax for both binary and multiclass classification results.

F1 Score was 30.80%

6. Results & Discussion

We have performed emotion classification using Naive Bayes, SVM, CNN, RNN, and word2vec + LSTM comparing F1 score of each it is concluded that RNN is performing best among all when trained on DENS dataset.

We used these parameters configurations for RNN Model:

```
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
embedding_4 (Embedding)      (None, 5000, 200)         1000000
_________________________________________________________________
dropout_6 (Dropout)          (None, 5000, 200)         0
_________________________________________________________________
bidirectional_4 (Bidirection (None, 400)               641600
_________________________________________________________________
dropout_7 (Dropout)          (None, 400)               0
_________________________________________________________________
dense_4 (Dense)              (None, 8)                 3208
=================================================================
Total params: 1,644,808
Trainable params: 1,644,808
Non-trainable params: 0
```

• Embedding dimensions: 5000, 200

•dropout for embedding: 0.2

•RNN layer kind: Bidirectional LSTM

•RNN neurons: 200 (hidden layer)

•RNN layer bi-directional: Yes

•RNN dropout of layers: 0.2

•Dense layer: 8

•Activation layer: SoftMax.

The optimizer we have used is RMSProp for RNNs, a batch size of 128 and epoch of 10. Our system performed best result and achieved an accuracy of 54.205%.The results of all the models are listed in Table 1.

Model	**Micro-f1 Score**
Naive Bayes	32.8
SVM	33.5
CNN	24.59
Word2vec+ LSTM	33.02
RNN	**54.20**

Table 1: F1-score of all classifier models

7. Conclusion

In this work we performed sentiment analysis of Email data. We have classified emails from dens dataset eight different classes of the Plutchik's emotion wheel: joy, trust, fear, surprise, sadness, expectation, anger, and disgust. machine learning and deep learning techniques like naïve Bayes, SVM, CNN, LSTM and RNN are used for classifying email data and we observed RNN gives higher accuracy than all other models. In future we will try to improve accuracy by using attention mechanism over RNN.

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15. Rohit Kumar Kaliyar, "A Multi-layer Bidirectional Transformer Encoder for Pre-trained Word Embedding: A Survey of BERT"

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3. It was publish in the month of April 21.
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[Asst. Professor]
[Computer Engineering]

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Respected Sir,

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(Computer Department)

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		G ✓	4000/- per paper	
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		J	7500/- Per paper	

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(19) INDIA
(22) Date of filing of Application :16/10/2020

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(43) Publication Date : 13/11/2020

(54) Title of the invention : QUICK RESPONSE CODE BASED VEHICLE VERIFICATION AND CHALLAN GENERATION SYSTEM (QRCVVCGS)

(51) International classification :G06F11/00
(31) Priority Document No :NA
(32) Priority Date :NA
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Filing Date :NA
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(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
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2)Nikita Singhal
(72)**Name of Inventor** :
1)Dr. Lalji Prasad
2)Nikita Singhal

(57) Abstract :
Present invention relates to Quick Response (QR) Code based Vehicle Verification and Challan Generation System. QR Code contains owner™s and vehicle™s information that may be attached on front side of the vehicle. This will automatically identify the owner, check validity of vehicle™s document and will generate the challan to the traffic rule violators. The present invention relates to the field of Intelligent Transportation System (ITS). It will help in bringing more safety on road, increase transparency in traffic rules and law enforcement. It will avoid conflict between traffic police and public and will also bring awareness of traffic rules and regulations among public.

No. of Pages : 25 No. of Claims : 7

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Sinhgad Technical Education Society's

SINHGAD COLLEGE OF ENGINEERING, PUNE - 41.

(Accredited by NAAC with "A" Grade) in collaboration with

Savitribai Phule Pune University

Organizes

International Conference on Pervasive Computing-2020

Certificate

ICPC 2020

This is to certify that ~~Mr. / Ms.~~ Rupali Bagate

has presented / attended / authored the paper on Sarcasm Detection On Tweets Using Deep Learning

in the "International Conference on Pervasive Computing-2020" (ICPC-2020) organized by Department of Electronics and Telecommunication, Computer Engineering and Information Technology, Sinhgad College of Engineering, Pune, during Feb. 13-14, 2020.

Dr. S. D. Lokhande, Convener, Principal, SCOE, Pune

Dr. M. B. Mali, Co-convener, HOD, E&TC Dept., SCOE, Pune

Prof. M. P. Wankhade, Co-convener, HOD, Computer Dept., SCOE, Pune

Prof. G. R. Pathak, Co-convener, HOD, IT Dept., SCOE, Pune

Dr. S. O. Rajankar, Technical Chair

Savitribai Phule Pune University

Sinhgad Institutes

ICPC 2020

Journals Pub

Yashika

IEEE computer society

PUNE 411 015

Army Institute of Technology(College Fund New)

Opp: Hills Alard, Road Pune-15

Ph No 02027157534

R&DE for Staff (ASGE)

Cost Centre Account

1-Apr-2020 to 31-Mar-2021

	Date	Particulars	Vch Type	Vch No	Debit	Credit
1	9-9-2020	Dr **Faculty and Students R&D Expenses**	Payment	486	17,896.00	
		Being Payment To Seema Tiwari Towards Reimbursement Of Five Research Papers XRD TGA DSC FTIR &TEM				
2	21-9-2020	Dr **Faculty and Students R&D Expenses**	Journal	313	31,205.00	
		Preparing One UVC Sanitization Chamber In AIT				
3	23-10-2020	Dr **Faculty and Students R&D Expenses**	Payment	717	40,110.00	
		Being Amount Paid To Seema Tiwari Towards Payment Of Expenditure On Two Patents Filed Through A Patent Attorney				
4	21-1-2021	Dr **Faculty and Students R&D Expenses**	Journal	683	13,570.00	
		Being Payment For Filing Response To ERP To Patent Attorney Dhatrak & Pantshe				
5	12-3-2021	Dr **Faculty and Students R&D Expenses**	Payment	1386	17,853.00	
		Being Amount Paid To Seema Tiwari Towards Reimburse Of International Patent Filing Through PCT				
6	17-3-2021	Dr **Faculty and Students R&D Expenses**	Payment	1404	3,000.00	
		Being Amount Paid To M Chandola Towards Reimbursement Of International Conference on Post Covid Challenges On Life & Livelihood				
7	18-3-2021	Dr **Faculty and Students R&D Expenses**	Payment	1413	8,500.00	
		Being Amount Paid To Seema Tiwari Towards Reimbursment Of Registration Fees -3rd International Conforance : VIT Vellore Campus				
					1,32,134.00	
	Dr	**Closing Balance**				1,32,134.00
					1,32,134.00	**1,32,134.00**

ICMMM2021

Certificate of Participation

This certificate is awarded to Dr. Seema Tiwari **Assistant Professor (ASGE).** *from*

Army Institute of technology, Dighi, Alandi, Pune *in recognition of oral and technical presentation*

titled **Biomedical application of Carbon nanotubes (CNTs) in vulnerable parts of the body and its toxicity study: A state-of-the-art-review.** *in*

ICMMM 2021, ***3rd INTERNATIONAL CONFERENCE ON MATERIALS, MANUFACTURING AND MODELLING***

held in VIRTUAL MODE on 19h - 21st Mar 2021.

Dr. Anthony Xavior M
Organizing Chair

Dr. Vasudevan R
Dean – School of Mechanical Engineering

Jointly Organised by
Vellore Institute of Technology (VIT), India., University of Utah, USA., Liverpool John Moores University, UK., Duchosal University of Tours, France., Mokpo National University, Korea.
In Association With
American Society of Mechanical Engineers, Vellore Institute of Technology (VIT), India

PROPERTY INDIA
Ministry of Commerce and Industry
औद्योगिक नीति एवं संवर्धन विभाग
Department of Industrial Policy and Promotion
महानियंत्रक एकस्व, अभिकल्प एवं व्यापार चिह्न का कार्यालय
Office of the Controller General of Patents, Designs & Trademarks
Rajiv Gandhi National Institute of Intellectual Property Management, Civil Lines, Nagpur. 440 001 (INDIA)

CERTIFICATE

This is to certify that

Seema Tiwari

has successfully completed

One week training program on
"Patent Filing, Proceedings, Patent Search, Specification, Claims Writing, Trademarks, GI, Copyright & Design Filing"

conducted by

Rajiv Gandhi National Institute of Intellectual Property Management (RGNIIPM), Nagpur

during 20 - 25 May, 2019

...stitute of Technology(College Fund New)
Dighi Hills,Alandi Road,Pune-15
Ph No 02027157534

R & De for Staff (E&TC)

Cost Centre Account
1-Apr-2019 to 31-Mar-2020

ite	Particulars	Vch Type	Vch No	Debit	Page Cred
11-4-2019	Dr **Faculty and Students R&D Expenses** *Being paid CNo 004239 to Mr Bipul Kumar on acct of purchase of hardware components for EVM(BE Proj) using finger print sensor*	Payment	26	4,441.00	
11-5-2019	Dr **Faculty and Students R&D Expenses** *004335 issued to Rohan Dalal*	Payment	128	17,298.00	
3-7-2019	Dr **Faculty and Students R&D Expenses** *Ch No 004426 dt 3-7-2019 Issued To Vijay Godbole,Y Ravindar Thappa Towards Academic Advisory committee Meeting Of E&TC Dpt*	Payment	275	5,876.00	
13-7-2019	Dr **Faculty and Students R&D Expenses** *Ch No 004444 dt. 13-7-2019 Issued To Prof. Shraddha Oza Towards IIT Bombay E-CELL Visit*	Payment	313	4,579.00	
22-7-2019	Dr **Faculty and Students R&D Expenses** *CREDIT BY BANK AS PER BANK STATMENT*	Receipt	107		6,340
17-9-2019	Dr **Faculty and Students R&D Expenses** *Ch No 004724 dt. 17-9-2019 Issued To P.b Karandikar Towards Od & Ta/Da For Paper Presentation in IEEE Conferance*	Payment	548	1,981.00	
30-9-2019	Dr **Faculty and Students R&D Expenses** *credit by bank 1 sep to 16/sep*	Receipt	165		40,800
	Dr **Faculty and Students R&D Expenses** *Being Workshop On Linux For Teacher & Coordinatotr s Remaining Amount Rs (6400-4605 =1795) Is Transferred Online In The Alt Account*	Receipt	168		1,795
17-10-2019	Dr **Faculty and Students R&D Expenses** *EXPENSES AGAINT ADVANCE ON R AND D (E &TC DEPT)*	Journal	219	22,638.00	
31-10-2019	Dr **Faculty and Students R&D Expenses** *credit by bank as per bank statment*	Receipt	187		1,34,900
13-11-2019	Dr **Faculty and Students R&D Expenses** *Ch No 004877 dt. 13-11-2019 Issued To G.R Patil(neft) Towards Annual Processing Charges For paper Publication*	Payment	734	8,000.00	
26-11-2019	Dr **Faculty and Students R&D Expenses** *Being Received From ISf (E & TC DEPT)*	Receipt	214		6,240
26-12-2019	Dr **Faculty and Students R&D Expenses** *Ch No 005030 dt. 26-12-2019 issued TO Neft As Per List Towards Academic Advisory Comittee Meeting Of E & Tc Dept*	Payment	892	5,530.00	
6-1-2020	Dr **Faculty and Students R&D Expenses** *Ch No 004994 dt. 6-1-2020 Issued To Harjeet Kaur Towards IIT Bombay Organized Python Workshop*	Payment	931	6,500.00	
	Carried Over			76,843.00	1,90,075

continued

Case No: E&TC/C01 **Minute Sheet** Page No 1

Sub: Request for OD and Conf registration charges and TA for paper presentation in International Conference- ICCCES 2020 at MEA Engineering College, Perinthalmanna, Kerala

1. One research paper (as attached opposite) of undersigned is selected for presentation in ICCCES 2020 conference at MEA Engg College, Kerala which is on 26 and 27 Feb 2020.
2. I wish to go for presentation of this paper over there as other co-authors are unable to go for this. This paper will subsequently get published in Scopus Journal if presented in conference which is counted in NBA/NAAC. OD on 25 Feb to 28 Feb 2020 may be approved please. My load adjustment is placed opposite.
3. Apart from this, I request you to approve following amount towards paper presentation through budget of E&TC department,

a)Conference fee	Rs 3000
b)Pune to MEA Engg college & back travel charges	Rs 2500 (appox)
Total	**Rs 5500**

4. Copy of paper with plagiarism report, Acceptance letter and conference details are placed opposite.
5. Put up for your approval please.

10-2-2020
P B Karandikar

Recommended as per policy.

HOD E&TC 10/2/2020

Principal 11/02/2020

'R'

Travel tickets, conf. fee receipt and conf certificate are placed opposite. Put up for payment of Rs [redacted] Please

3/3/2020.

Principal Office	
S No	964
Dt	11/2
Sign	

MAIN OFFICE	
SR No.	4815
Dt.	4/3/20

R&D. (Stores)
Karandikar Sir
PV1548
Amt ₹1981

MINUTE SHEET
AIT

ASE NO AIT/ACCTS/2011 SHEET NO :

PAYMENT MINUTE SHEET

1 REF APPROVED NOTE ANTE.

2 PAYMENT DETAILS ARE AS UNDER:-

		IN RS
I)	BILL AMOUNT	1981/-
II)	LESS: TDS(IF ANY)	NIL
III)	TOTAL	1981/-

3 BANK OF BARODA CHEQUE NO 004724 ISSUED TO ~~* YOURSELF FOR NEFT~~ */ CHEQUE
IN FAVOUR OF P.B. Karandikar

4 FOR YOUR SIGNATURE & PERUSAL PLEASE.

OINT DIRECTOR 19/9/19

IRECTOR 20/9/19

18/9/19

19-20

Amt - 1981

Case No:E&TC/C01 **Minute Sheet** **Page No 1**

Sub: Request for OD and TA/DA for paper presentation in IEEE Conference

1. One research paper (as attached opposite) of AIT student is selected for presentation in IEEE conference at NITK. Conf is from 29 to 31 July 2019.
2. I wish to go for presentation of this paper over there as during this time there is Cultural Akruti and thus teaching load will not get affected. Conference fee is paid by my PhD student who is first author of this paper. OD on 29, 30 and 31 Aug 2019 may be approved please.
3. Apart from this, I request you to approve following amount towards paper presentation through budget of E&TC department,

a) Conference fee	Rs NIL
b) Pune to Surathkal and back train charges	Rs 2000 (appox)
c) DA for 3 days (29,30 and 31 Aug 2019)	Rs 1500
Total	**Rs 3500**

4. Copy of paper with plagiarism report and conference details are placed opposite
5. Put up for your approval please

P B Karandikar 17/8/19

As per policy Rs. 2000/- (TA) can be paid

Recommended

HOD E&TC 19/8/19

Recommend as per HOD's comments.

Principal 19/08/19

Principal Office

S	3500 3365
Dt	19/8
Sign	

JD 21/8/19

D 21/8/19.

Certificate and tickets are placed opposite. Put up for payment please Rs 1981/- 19/9/19.

	9165
	19/9

19-20

titute of Technology(College Fund New)
r Staff (E&TC) Cost Centre Account : 1-Apr-2019 to 31-Mar-2020

Particulars	Vch Type	Vch No	Debit	Credit
Brought Forward			76,843.00	1,90,075.00
7-1-2020 Dr **Faculty and Students R&D Expenses** Payment 005062 issued to Kara Vijay Kumar twds Reimbursement of bill AICTE chhatra Vishwakarme Awards Regional Convention at Bhopal		953	10,000.00	
16-1-2020 Dr **Faculty and Students R&D Expenses** Payment Being Ch NO -005047 Paid B.k.Shinde Towards Hospitality Exp-540,Sushama Shirke -9000, 4000Pragati Rana,Rs 12613 Renovation,3500 Linux Workshop 3500 Paint		992	3,500.00	
21-1-2020 Dr **Faculty and Students R&D Expenses** Payment ONLINE PAYMENT THROUGH NETBANKING TO SHILPA PAWAR TWDS PAYMENT BODHI LAB CERTIFICATION PROGRAMME		1027	1,000.00	
23-1-2020 Dr **Faculty and Students R&D Expenses** Payment ONLINE TRANSFER PAYMENT THROUGH ICICI NETBANKING TO COPPERCLOUD IOTECH PVT LTD GUEST SPEAKER (ABHIJEET DEOGIROKAR)		1040	2,500.00	
30-1-2020 Dr **Faculty and Students R&D Expenses** Journal Being Payment To Coordinators Workshop (Prof-Surekha)		466	880.00	
13-2-2020 Dr **Faculty and Students R&D Expenses** Payment Ch. No. : 005281 dt. 13-2-2020 Issued To Pravin Sangle Towards Workshop On Linux IIT Bombay		1171	1,000.00	
3-3-2020 Dr **Faculty and Students R&D Expenses** Payment Being Payment To P.B.karandikar Towards Paper Presentation In International Conference _ICCCCES 2020 at MEA Eingineering College Kerala		1252	4,872.00	
7-3-2020 Dr **Faculty and Students R&D Expenses** Payment Being payment TO Shraddha Oza Towards Expenses For Fed Organized Under IITDM		1273	2,320.00	
9-3-2020 Dr **Faculty and Students R&D Expenses** Payment Ch. No. : 005277 dt. 9-3-2020 Issued To Self (Renuka Bhandari) Towards Arduino Workshop Teachers & Coordinators Hospitality Exp		1284	500.00	
			1,03,415.00	1,90,075.00
Cr **Closing Balance**			86,660.00	
			1,90,075.00	**1,90,075.00**

Institute of Technology(College Fund New)
Dighi Hills,Alandi Road,Pune-15
Ph No 02027157534

R & De for Staff (E&TC)

Cost Centre Account
1-Apr-2019 to 31-Mar-2020

ite	Particulars	Vch Type	Vch No	Debit	Page Cred
11-4-2019	Dr **Faculty and Students R&D Expenses** *Being paid CNo 004239 to Mr Bipul Kumar on acct of purchase of hardware components for EVM(BE Proj) using finger print sensor*	Payment	26	4,441.00	
11-5-2019	Dr **Faculty and Students R&D Expenses** *004335 issued to Rohan Dalal*	Payment	128	17,298.00	
3-7-2019	Dr **Faculty and Students R&D Expenses** *Ch No 004426 dt 3-7-2019 Issued To Vijay Godbole,Y Ravindar Thappa Towards Academic Advisory committee Meeting Of E&TC Dpt*	Payment	275	5,876.00	
13-7-2019	Dr **Faculty and Students R&D Expenses** *Ch No 004444 dt. 13-7-2019 Issued To Prof. Shraddha Oza Towards IIT Bombay E-CELL Visit*	Payment	313	4,579.00	
22-7-2019	Dr **Faculty and Students R&D Expenses** *CREDIT BY BANK AS PER BANK STATMENT*	Receipt	107		6,340
17-9-2019	Dr **Faculty and Students R&D Expenses** *Ch No 004724 dt. 17-9-2019 Issued To P.b Karandikar Towards Od & Ta/Da For Paper Presentation in IEEE Conferance*	Payment	548	1,981.00	
30-9-2019	Dr **Faculty and Students R&D Expenses** *credit by bank 1 sep to 16/sep*	Receipt	165		40,800
	Dr **Faculty and Students R&D Expenses** *Being Workshop On Linux For Teacher & Coordinatotr s Remaining Amount Rs (6400-4605 =1795) Is Transferred Online In The Alt Account*	Receipt	168		1,795
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31-10-2019	Dr **Faculty and Students R&D Expenses** *credit by bank as per bank statment*	Receipt	187		1,34,900
13-11-2019	Dr **Faculty and Students R&D Expenses** *Ch No 004877 dt. 13-11-2019 Issued To G.R Patil(neft) Towards Annual Processing Charges For paper Publication*	Payment	734	8,000.00	
26-11-2019	Dr **Faculty and Students R&D Expenses** *Being Received From ISf (E & TC DEPT)*	Receipt	214		6,240
26-12-2019	Dr **Faculty and Students R&D Expenses** *Ch No 005030 dt. 26-12-2019 issued TO Neft As Per List Towards Academic Advisory Comittee Meeting Of E & Tc Dept*	Payment	892	5,530.00	
6-1-2020	Dr **Faculty and Students R&D Expenses** *Ch No 004994 dt. 6-1-2020 Issued To Harjeet Kaur Towards IIT Bombay Organized Python Workshop*	Payment	931	6,500.00	
	Carried Over			76,843.00	1,90,075

continued

Second International Conference on

Computing, Communication and Energy Systems 2020

26 - 27, February 2020 I Perinthalmanna, Kerala, India

CERTIFICATE

ICCCES 2020

CES 1057

This certificate is presented to

Karandikar P B

Department of Electronics & Telecommunication Engg
Army Institute of Technology
Pune, Maharashtra
India

for presenting the research paper entitled "**Implementation of Design of Experiments for E-Rickshaw Range Prediction**" in the Second International Conference on Computing, Communication and Energy Systems 2020 (ICCCES 2020) held at MEA Engineering College, Perinthalmanna, Kerala, India during 26 - 27, February 2020.

Dr. Febina Beevi
Organizing Chair

Dr. V.H.Abdul Salam
Conference Co-Chair

Dr. G.Ramesh
Conference Chair

Organized by
MEA ENGINEERING COLLEGE
PERINTHALMANNA, KERALA, INDIA.

CMS Partner
Diligentec Solutions

NITRR/EE/ICPC2T/2020/PP/93

First IEEE International Conference on Power, Control and Computing Technologies (ICPC²T) 2020

IEEE
Advancing Technology for Humanity

ICPC²T
3-4-5 January 2020
Raipur | Chhattisgarh | India

CERTIFICATE OF PARTICIPATION

This is to certify that

Dr. /Mr./Ms. Parshuram Karandikar

has presented/contributed a research paper titled

Investigation of Layered Separators for Improved Performance of Supercapacitors

in the **First International Conference on Power, Control and Computing Technologies** (ICPC²T-2020), organized by Department of Electrical Engineering, **National Institute of Technology Raipur, India,** during 4th to 5th, January 2020.

Dr. R.N. Patel	Dr. Subhojit Ghosh	Dr. Anamika Yadav	Dr. Narendra D. Londhe
(Organizing Chair)	(Organizing Secretary)	(Organizing Secretary)	(General Chair)

2019-20

Army Institute of Technology(College Fund New)
Dighi Hills,Alandi Road,Pune-15
Ph No 02027157534
State Name : Maharashtra, Code : 27

Payment Voucher

No. : **766** Dated : **19-Nov-19**

Particulars	Amount
Account :	
Faculty and Students R&D Expenses	**18,000.00**
Through :	
Bank of Baroda Savings A/c 12490100001250	
On Account of :	
Ch. No. : 004897 dt. 19-11-2019 Issued To S.M.Gaikwad (neft) Towards Mass Transfer Conference (IHMTC-2019) IIT Roorkee Campus	
Amount (in words) :	
INR Eighteen Thousand Only	
	₹ 18,000.00

Receiver's Signature: Authorised Signatory

3


Indian Society for Heat and Mass Transfer (ISHMT)
American Society of Thermal and Fluids Engineers (ASTFE)
26th National and 4th International
ISHMT-ASTFE
Heat and Mass Transfer Conference
(IHMTC 2021)
17th-20th December, 2021
Organized by IIT Madras
Certificate of Participation
This is to certify that
SANJAY GAIKWAD
has participated in the 26th National and 4th International - ISHMT-ASTFE
Heat and Mass Transfer Conference (IHMTC 2021),
17th - 20th December, 2021
Prof. T Sundararajan
Organizing Chairman
Prof. Arvind Pattamatta
Organizing Secretary
Prof. Ashis Sen
Organizing Secretary

2019-20

Army Institute of Technology(College Fund New)
Dighi Hills,Alandi Road,Pune-15
Ph No 02027157534
State Name : Maharashtra, Code : 27

Payment Voucher

No. : **1250** Dated : **3-Mar-20**

Particulars	Amount
Account :	
Faculty and Students R&D Expenses	**26,535.00**
Through :	
Bank of Baroda Savings A/c 12490100001250	
On Account of :	
Ch. No. : 005284 dt. 3-3-2020 Issued To J.D. Patil Towards Reimbursement For 25 Th National & 3 International ISHMT-ASTFE Heat 7 Mass Transfer Conference At IIT Roorkee Campus	
Amount (in words) :	
INR Twenty Six Thousand Five Hundred Thirty Five Only	
	₹ 26,535.00

Receiver's Signature: Authorised Signatory

25th National and 3rd International ISHMT - ASTFE

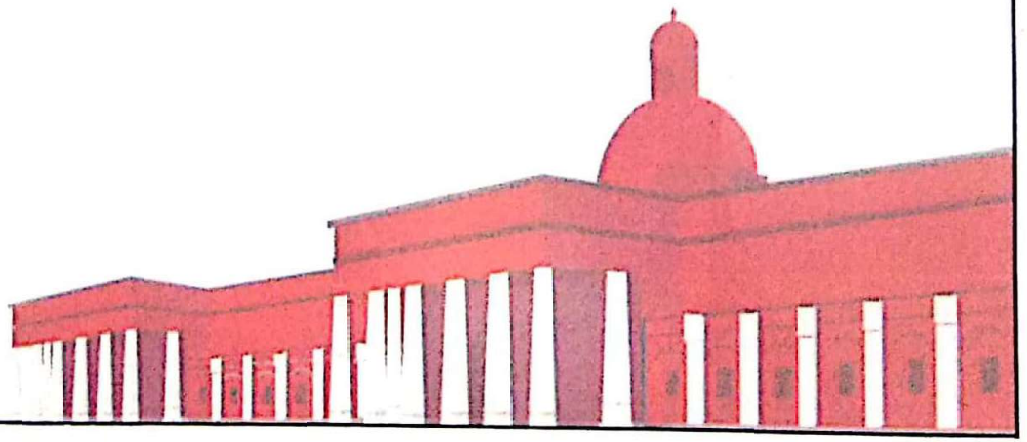
Heat and Mass Transfer Conference

December 28-31, 2019, IIT Roorkee, Roorkee, India

Certificate

This is to certify that *Mr Jitendra Patil* from *AIT Pune* has presented a paper entitled *"Experimental study of oscillation flow in rectangular minichannel array"* in the 25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference held during December 28-31, 2019 at IIT Roorkee, India.

(Ravi Kumar)
Organizing Secretary
IHMTC 2019



Army Institute of Technology(College Fund 2019-20)
Dighi Hills,Alandi Road,Pune-15
Ph No 02027157534

Payment Voucher

No. : **240** Dated : **24-Jun-2019**

Particulars		Amount
Account :		
Faculty and Students R&D Expenses		**10,390.00**
R&DE-IT Dept		
Staff of IT Dept	**10,390.00 Dr**	

Through :
Bank of Baroda(12490100001250)

On Account of :
being ch-004628 issued for conference reimbursement to IT DEPT(DR ASWINI SAPKAL)

Bank Transaction Details:

Cheque	004628	24-Jun-2019	**10,390.00**

Amount (in words) :
INR Ten Thousand Three Hundred Ninety Only

₹ 10,390.00

Receiver's Signature:

Authorised Signatory

27/6/19

Put up for approval / signature please

Joint Director 26/6/19

Director 27/6/19

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015 IT DEPT

CERTIFICATE

2nd International Conference

SOFT COMPUTING AND SIGNAL PROCESSING *(ICSCSP-2019)*

June 21-22, 2019

THIS IS TO CERTIFY THAT

DR/PROF/MR/MRS. Ashwini Sapkal

FROM Army Institute of Technology, Pune

HAS PRESENTED A PAPER ENTITLED

Fast Converging Magnified Weighted Sum Back propagation

IN THE 2ND INTERNATIONAL CONFERENCE ON SOFT COMPUTING AND SIGNAL PROCESSING (ICSCSP-2019) ORGANIZED BY MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY, HYDERABAD, INDIA. THIS PAPER HAS BEEN PUBLISHED IN THE PROCEEDINGS OF ICSCSP-2019, SPRINGER –ADVANCES IN INTELLIGENT SYSTEMS AND COMPUTING (AISC) SERIES.

Dr. Jiacun Wang
Editor, ICSCSP
Monmouth University

Dr. Suresh Chandra Satapathy
Publication Chair
KIIT, Bhubaneswar

Prof. P. Sanjeeva Reddy
Convener, ICSCSP
Dean, International Studies

Dr. VSK Reddy
Conference Chair, ICSCSP
Principal

Army Institute of Technology(College Fund 2019-20)
Dighi Hills,Alandi Road,Pune-15
Ph No 02027157534

Payment Voucher

No. 245 Dated 27-Jun-2019

Particulars	Amount
Account :	
Faculty and Students R&D Expenses	18,701.00
R&DE-IT Dept	
Staff of IT Dept 18,701.00 Dr	

Through :
Bank of Baroda(12490100001250)

On Account of :
being ch-004643 issued for international conference IT DEPT(RUPALI BAGATE)

Bank Transaction Details:

Cheque	004643	27-Jun-2019	18,701.00

Amount (in words) :
INR Eighteen Thousand Seven Hundred One Only

₹ 18,701.00

Receiver's Signature:

Authorised Signatory

29/6/19

Put up for approval / signature please

Joint Director 21/6/19

Director

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015 DEPT

AIT Minute sheet
Department of Information Technology

Sheet No 1

1

Pls refer

1) It is recommended to reimburse the TA & registration fee as per flag A. The said conference was useful in view of knowledge enrichment.

2) put up for your kind approval from R&D budget for staff of Yr 2019-20 pls.

check of amt Rs 18701/- may pls be issued in favour of Ms Rupali Bagate

27/6

SJadhav 12/06/19

Dr Sangeeta Jadhav
HOD IT

2

Principal: 12/06/19 As proposed in Flag 'A' may be reimbursed.

Principal Office
S No. 1429
Dt 12/6
Sign

3

Jt Director: 1. 'R' reimbursement of Regn Fees as per Flag 'A'. For reimbursement of TA, prior approval of the Dir is/was reqd.

14/6/19

4

Director:

Check if prior approval taken.

No prior approval was taken.

17/6/19

Principal

18/06/19

Pl [illegible]

Principal [illegible] HOD. 1- Verbal permission taken from HOD.
2. [illegible]

A/C

SR 2201
12/06/19

Date: 12/06/2019

To,
The Principal,
A.I.T,
Pune 15.

Subject: Kind Request to grant reimbursement for the International Conference (ICETCE-2019) held in Jaipur, Rajasthan

Respected Sir,

1. We, the undersigned presented paper in the International Conference on Emerging Technologies in Computer Engineering (ICETCE 2019) held during 1st Feb to 2nd Feb 2019 at SKIT JAIPUR. **All Accepted & Presented Papers will be published in Springer CCIS Series and ESCI Index Journal of Taylor & Francis.**
2. Here we have attached certificate of presentation, boarding passes of flights and Registration fees receipts.
3. We are not attaching plagiarism report as college software is not working since many days.
4. We request you to grant reimbursement of registration fees and TA for the same as per AIT policy.

Put up for your approval Pl.

Thanking You.

Yours Sincerely,

Bagate

(Mrs. Rupali Bagate)
Asst Professor

(Mrs. Aparna Joshi)
Asst Professor

Jadhav 12/06/19

HOD IT
Dr. Sangeeta Jadhav

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015

Faculty

SWAMI KESHVANAND INSTITUTE OF TECHNOLOGY MANAGEMENT & GRAMOTHAN, JAIPUR

International Conference
on
Emerging Technologies In Computer Engineering

"Microservices In Big Data Analytics"

ICETCE-2019

This is to certify that Prof./Dr./Mr./Ms. Rupali Amit Bagate

from Army Institute of Technology, Pune has Participated/Presented

a paper entitled on Assessment of Feature Selection for Student Academic Performance through Machine Learning Classification.

in the ICETCE'19 held at SKIT Jaipur during February 01-02, 2019.

Shri Jaipal Meel	Prof.(Dr.) Anil Chaudhary	Prof.(Dr.) C.M. Choudhary	Dr. Basant Agarwal
Director (SKIT)	Conference Chair	Organizing Chair	Program Chair

Technically Sponsored By

Springer Infosys Campus Connect IBM Developer Ecosystem Group

Sponsored By

Department Of Science & Technology

PV|631

MINUTE SHEET
AIT

CASE NO AIT/ACCTS/2011 SHEET NO :

PAYMENT MINUTE SHEET

1 REF APPROVED NOTE ANTE.

2 PAYMENT DETAILS ARE AS UNDER:-

		IN RS
I)	BILL AMOUNT	7500/-
II)	LESS: TDS(IF ANY)	Nil
III)	TOTAL	7500/-

3 BANK OF BARODA CHEQUE NO 004807 ISSUED TO "YOURSELF FOR NEFT " IN FAVOUR OF Rupali Bagate

4 FOR YOUR SIGNATURE & PERUSAL PLEASE.

JOINT DIRECTOR 15/X/19

DIRECTOR 15/10/19

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015 DEPT

15/10/19

MINUTE SHEET

AIT

Case No: AIT/13x1/ staff/IT

Sheet No. 01

Pls refer opposite -

1) The application of Journal registration fee reimbursement is placed. All required documents are attached by Prof. Rupali Bagate. Registration fee of Rs 7500/- may pls be reimbursed from R&D budge
2) Put up for your perusal and kind approval pls.

'R'
Sajadhav
4/10/19
HOD (IT)

'R'
The Principal 06/10/19

The JH. Div 'R' 10/X/19

The Dir - Approved

09/X/19.

The Acct. section.

SAKEC INSTITUTE OF TECHNOLOGY PUNE AIT 015 DEPT

MAIN OFFICE	
SR No.	3660
Dt.	5/10
Sign	DM

Principal Office	
S No.	4120
Dt	9/10

Springer

ICICI-2019

CERTIFICATE OF PARTICIPATION

This is to certify that

Rupali Amit Bagate

has presented a paper titled

Different Approaches in Sarcasm Detection: A Survey

at the 2nd International Conference on Intelligent Data Communication Technologies and Internet of Things (ICICI 2019) organized by JCT College of Engineering and Technology during 12-13, September 2019 at Coimbatore, Tamil Nadu, India.

Session Chair

Conference Chair
Dr. K. Geetha

Principal
Dr. G. Ramesh

Army Institute of Technology(College Fund 2019-20)
Dighi Hills,Alandi Road,Pune-15
Ph No 02027157534

Payment Voucher

No 1166 Dated : 12-Feb-2020

Particulars	Amount
Account :	
Faculty and Students R&D Expenses	**14,543.00**
IT Department Expenses	
R&DE for Staff (IT) 14,543.00 Dr	
Through :	
ICICI Bank(A/c No 215201000341)	
On Account of :	
Being Payment To Aswini Sapkal TOwards CSI Annual Convention 2020	
Bank Transaction Details:	
Others 12-Feb-2020 **14,543.00**	
Amount (in words) :	
INR Fourteen Thousand Five Hundred Forty Three Only	
	₹ 14,543.00

Receiver's Signature:

Authorised Signatory

12/2/20

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015 IT DEPT

14/02/2020

17/2/20

Army Institute of Technology(College Fund 2019-20)
Dighi Hills,Alandi Road,Pune-15
Ph No 02027157534

Payment Voucher

No 1166 Dated : 12-Feb-2020

Particulars	Amount
Account :	
Faculty and Students R&D Expenses	**14,543.00**
IT Department Expenses	
R&DE for Staff (IT) 14,543.00 Dr	
Through :	
ICICI Bank(A/c No 215201000341)	
On Account of :	
Being Payment To Aswini Sapkal TOwards CSI Annual Convention 2020	
Bank Transaction Details:	
Others 12-Feb-2020 **14,543.00**	
Amount (in words) :	
INR Fourteen Thousand Five Hundred Forty Three Only	
	₹ 14,543.00

Receiver's Signature:

Authorised Signatory

12/2/20

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015 IT DEPT

14/02/2020

17/2/20

NOTING SHEET

AIT

Case No : AIT/0093/TD/Adm

Sheet No : Five

Principal 11/02/2020

A/C — FNA

o/s — for record.

1) The expenditure is Rs 14543/- It is approved. It is requested to ~~remit~~ transfer Rs14543/- to Dr. Ashwini Saptal.

Abapkal

A/c section :-

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015 DE: T -

NOTING SHEET

AIT, PUNE

Case No : AIT/0093/TD/Adm Sheet No : Three

4. As a follow up AIT is hosting a CSI Pune Chapter Project competition on 27 Mar 2020. Student participation in such events and publishing papers / journals will be ~~[illegible]~~ beneficial for them.

5. For perusal please.

[signature] 05/2/20

Chairman 7
(Through SO)

1. Ref Note Ante
2. Feedback as per Para 2 of Note 3 Ante from Dr Ashwini Sapkal is placed opposite for perusal please.

[signature] 07/2

Chairman perused - 8
M 07/02

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015 T DEPT

[signature] 08/2

Dir AIT 10

[signature] 08/2/20

NOTING SHEET

AIT, PUNE

Case No : AIT/0093/TD/Adm Sheet No : One

CSI ANNUAL CONVENTION 2020

1

1. Refer SOP on the subject issued vide HQ AWES letter No B/45840/Wksp-Seminar/AWES dated 13 Mar 2019. **PUC**

2. Dr Ashwini Sapkal, Associate Professor from IT Department, is applying for the CSI Annual Convention 2020 which will be held from 16 to 18 Jan 2020 at KIIT University, Bhubaneshwar, Odisha, organized by CSI Bhubaneshwar Chapter. Being AIT CSI Student Branch Coordinator, she would like to attend the convention for the above mentioned period. Total expenditure of travel is Rs. 14,543/-. Registration fees and Accommodation charges are complementary. The claimed amount is well within norms of SOP above.

3. Her application Form as per Para No. 11 of SOP under reference is placed opposite. **Flag 'A'**

4. Put up for approval of Chairman please.

(Abhay A Bhat)
Brig (Retd)
Director

10 Jan 2020

Chairman, AIT
(Through SO to Chairman)

2

Recommended for approval please

10/1

ARMY INSTITUTE OF TECHNOLOGY PUNE 411 015

3

Chairman

1. Approved.
2. Feedback to incl benefit accrued to AIT and value addition wrt skill enhancement of Dr Ashwini Sapkal be put up on this notingsheet for perusal of Chairman pl.
3. Why can't we plan such events in advance for the entire year so that we don't wake up 8-10 days prior to conduct of event. We are not proactive. Pl plan in advance for ensuring value for money and time of faculty.

10 Jan 2020

10/01/20

Computer Society of India™

CSI 2020 convention BHUBANESWAR

53rd ANNUAL CONVENTION 2020

International Conference on Digital Democracy - IT for Change

Certificate of Participation

This is to certify that Prof./Dr./Mr./Ms. ASHWINI SAPKAL has participated in the International Conference on "**Digital Democracy-IT for Change**", held during 16th-18th January, 2020 at KIIT, Bhubaneswar, organised by the Computer Society of India.

Springer

Dr. Lalit M. Patnaik
General Chair

Dr. Prafulla Ku. Behera
Programme Chair

Army Institute of Technology(College Fund 2019-20)
Dighi Hills,Alandi Road,Pune-15
Ph No 02027157534

Payment Voucher

No. : **229** Dated : 20-Jun-2019

Particulars	Amount
Account :	
Faculty and Students R&D Expenses	**9,425.00**
Faculty and Students R&DE Activities	
ASGE 9,425.00 Dr	
Through :	
Bank of Baroda(12490100001250)	
On Account of :	
Being issued for Paper Presentation by Prof Ganesh Munde	
Bank Transaction Details:	
Cheque 004638 20-Jun-2019 **9,425.00**	
Amount (in words) :	
INR Nine Thousand Four Hundred Twenty Five Only	
	₹ 9,425.00

Receiver's Signature: Authorised Signatory

For your Signature plz.

24/6/19

25/6/19

International Conference on Discrete Mathematics and Its Application to Network Science
(ICDMANS-2018)

July 07-10, 2018

Department of Mathematics, BITS-Pilani K K Birla Goa Campus, Goa

Dr./Prof./Mr./Ms. Ganesh Mundhe has paid Rs. 4200/- as registration fee for "International Conference on Discrete Mathematics and Its Application to Network Science" held during July 07-10, 2018 at Birla Institute of Technology and Science Pilani, K K Birla Goa Campus, Goa, India.

Date: July 07, 2018

Conference Chair

Department of Mathematics
BITS Pilani K K Birla Goa Campus
Zuarinagar, Goa
India- 403726

AIT College Account
Dighi Hills
Pune-411015

Payment Voucher

No. : **577**

Dated : **15-Oct-18**

Particulars	Amount
Account :	
E&TC-R&DE/Workshop/Projects	**19,624.00**
Through :	
Bank of Baroda A/C No 12490100001250	
On Account of :	
003415 issued to Prof sushma Waddar twds IEEE Conf at Chennai (paper Presantaion)	
Amount (in words) :	
Indian Rupees Nineteen Thousand Six Hundred Twenty Four Only	
	₹ 19,624.00

Receiver's Signature:

Authorised Signatory

AIT
MINUTE SHEET

AIT/ 1 Sheet No. 02

Department of Electronics and Telecommunication
IEEE Conference at Chennai

1. Please refer notes ante.
2. The certificates of both the papers presented in the IEEE conference at Chennai on 7th and 8th Sept 2018, are placed opposite. Flag 'D'.
3. The registration fees paid by each author is Rs. 6212/-. Receipts placed opposite. Flag 'C'. (2x 6212/- = 12424/-).
4. The travelling charges of one person by train, 3 tier AC from Pune to Chennai and Back to Pune is Rs. 3600/-. (2 persons x 3600= 7200/-). The tickets were booked online through tatkal as the acceptance of paper was informed late.
5. Put up your kind perusal and reimbursement of an amount of Rs. 19,624/- please.

11/10/18
Ms. Sushma Wadar
Asst Prof E&TC

11/X/2018
Dr. G R Patil
HOD E&TC

2

Principal 12/10/18 – As per AIT rules.

3

Jt. Director 'R' from E&TC Budget 2018-19, please.

12/X/18

Director

4

303 chq no 003415 13/X/18
dt 15/10/18 Rs 19624/- send to Prof S Wadar

Put up for approval / signature pleas

Joint Director 15/X/18

Director

15/10/18

Principal Office

S No.	2477
Dt	11/10
Sign	

MAIN OFFICE

SR No.	599
Dt	11/10
Sign	

AIT
MINUTE SHEET

AIT/ Sheet No 1

Department of Electronics and Telecommunication
IEEE Conference at Chennai

1. Asst. Prof Avinash Patil and Asst Prof Sushma Wadar from E&TC department have submitted the research papers titled "*Novel technique of finding square of number to reduce the resources utilized on Reconfigurable Hardware Logic*" and "*Novel Approach to Perform Shift/Rotate and Bit Permutation Operation*" at the IEEE conference at GRT Institute of Engineering and Technology, Chennai. The plagiarism reports of both the papers along with the first page of the submitted papers have been placed opposite. Flag 'A'.
2. Both the papers have been selected for the oral presentation in the conference scheduled on 7th and 8th Sept. 2018. The acceptance letters are placed opposite. Flag 'B'.
3. On duty leave will be required from 7th to 10th Sept 2018 for attending and presenting the paper.
4. The registration fees is Rs. 6212/- each (Total fees paid =2x 6212= Rs. 12,424). The receipts are placed opposite. Flag 'C'.
5. The travelling charges by train for three tier AC to and from Chennai and Pune is Rs. 3600/- approx. each (Total charges = 2x 3600 = Rs. 7200/-).
6. The accommodation will be required for two days. The charges for the accommodation of two days is approximately Rs. 5000/-.
7. Put up for your perusal, approval and reimbursement of registration fees, travelling charges and accommodation charges which approximately Rs. 24,624/- please.

1. Mr. AvinashPatil Avinash 4/9/18
2. Ms. Sushma wadar Sush 04/9/18

1. As per Policy Rs. 7500/- + TA per head can be paid
Total Rs. 12424 + 7200 Rs. 19624/-
Budget Head
ERR Dept R&D.
Balance Rs. 98,650/-

HOD E&TC
Dr. G R Patil

2. Turnit-in is not available in Library for Plg check.

Principal 04/09/18

Jt. Director 06/09/18 'R' as per recommendation by HOD E&TC

Director 08/09/18

Principal Office	
S No.	321
Dt	4/9
Sign	

MAIN OFFICE	
SR No.	406
Dt	4/9
Sign	

Certificate

Interntional Conference on New Trends in Engineering & Technology

This is to certify that Dr. /Mrs. /Mr. /Miss **Sushma Wadar** has presented a paper entitled:

A Novel Approach to Perform Shift/Rotate and Bit Permutation Operation

in International Conference on New Trends in Engineering & Technology (ICNTET) - 2018, with Catalog "CFP18P34-PRT: 978-1-5386-5629-7" organized by GRT Institute of Engineering & Technology, Tiruttani, Chennai, Tamil Nadu, India during 7th & 8th September 2018.

Supported by IEEE Advancing Technology for Humanity

Supported by IEEE Madras Section

Dr. Siva Ganesh Malla
Director, CPGC

Dr. S. Arumugam
Principal, Conference Chair

Dr. Syed Arifullah
GHHR & MR

Certificate

Interntional Conference on New Trends in Engineering & Technology

This is to certify that Dr. /Mrs. /Mr. /Miss **Avinash Patil** *has presented a paper entitled:*

Novel technique of finding square of number to reduce the resources utilized on Reconfigurable Hardware Logic *in International Conference on New Trends in Engineering & Technology (ICNTET) - 2018, with Catalog "CFP18P34-PRT: 978-1-5386-5629-7" organized by GRT Institute of Engineering & Technology, Tiruttani, Chennai, Tamil Nadu, India during 7th & 8th September 2018.*

Supported by IEEE Advancing Technology for Humanity

Supported by IEEE Madras Section

Dr. Siva Ganesh Malla
Director, CPGC

Dr. S. Arumugam
Principal, Conference Chair

Dr. Syed Arifullah
GHHR & MR

...ger Account

...&DE Workshop/Projects Ledger Account ... Apr 2018 to ... Mar 2019 — Page 2

Date	Particulars	Vch Type	Vch No.	Debit	Credit
	Brought Forward			55,414.00	1,02,000.00
[illegible]-10-2018	Cr Bank of Baroda A/C No 12490100001250 003415 issued to Prof [illegible] IEEE [illegible]	Payment	[illegible]	[illegible]	
26-10-2018	Cr Bank of Baroda A/C No 12490100001250 003561 ISSUED TO YOURSELF FOR NEFT W/DS REFRESHMENT FOR FDP & WORKSHOP CERTIFIACTE HONORAIUM TO GUEST	Payment	599	9,110.00	
30-10-2018	Cr Bank of Baroda A/C No 12490100001250 003532 issued to Yourself for Neft	Payment	833	3,329.00	
21-12-2018	Cr Bank of Baroda A/C No 12490100001250 Being Ch No 003765 issued to Saurab Paper Presentation	Payment	942	9,510.00	
	Dr (as per details) Saving Bank Interest 13,116.00 Cr State Bank of India (Bank A/c) 13,116.00 Dr State Bank of India (Bank A/c) 81,600.00 Dr cr by bank	Receipt	172		81,600.00
15-1-2019	Cr Bank of Baroda A/C No 12490100001250 003800 issued to harjeet kaur	Payment	915	1,350.00	
1-2-2019	Cr Bank of Baroda A/C No 12490100001250 Being C No 003926 issued to Dr GR Patil agst pymnt of MOOC course certification	Payment	1009	4,301.00	
10-2-2019	Cr Bank of Baroda A/C No 12490100001250 Being C No 003959 issued to Prof Shradha Oza	Payment	1055	3,800.00	
	Cr Bank of Baroda A/C No 12490100001250 003944 issued to NEFT Expenses againt Grant Recd of Rs 81600 from AICTE for Telecom TEchnician IOT DEvices/Systems Course	Payment	1061	36,000.00	
15-2-2019	Cr Bank of Baroda A/C No 12490100001250 Being C No 003994 issued to Mr Ayush Chauhan agst reimbursement of IEEE conf ECEIC 2019 Chennai	Payment	1097	5,000.00	
18-2-2019	Cr Bank of Baroda A/C No 12490100001250 Being C No 003999 issued on acct of payment of honoranum to Mr Anand Thakkar, Sr Consultant, CADCAM GURU, Pune	Payment	1104	1,500.00	
21-2-2019	Cr Bank of Baroda A/C No 12490100001250 Being C No 004033 issued to Mr Saumyakanta on acct of refund of IEEE conference ICNTE at Mumbai	Payment	1119	5,900.00	
23-2-2019	Cr Bank of Baroda A/C No 12490100001250 Being C No 004056 issued for NEFT on acct of membership enrollment for of IETE students forum	Payment	1129	24,700.00	
	Carried Over			1,75,538.00	1,83,6

contir

2→19625

Stanford | ONLINE

COURSE CERTIFICATE

01/12/2019

Gajanan Rangarao Patil

has successfully completed

Machine Learning

an online non-credit course authorized by Stanford University and offered through Coursera

Associate Professor Andrew Ng
Computer Science Department
Stanford University

SOME ONLINE COURSES MAY DRAW ON MATERIAL FROM COURSES TAUGHT ON-CAMPUS BUT THEY ARE NOT EQUIVALENT TO ON-CAMPUS COURSES. THIS STATEMENT DOES NOT AFFIRM THAT THIS PARTICIPANT WAS ENROLLED AS A STUDENT AT STANFORD UNIVERSITY IN ANY WAY. IT DOES NOT CONFER A STANFORD UNIVERSITY GRADE, COURSE CREDIT OR DEGREE, AND IT DOES NOT VERIFY THE IDENTITY OF THE PARTICIPANT.

Verify at coursera.org/verify/HDTVC4M2ACJM

Coursera has confirmed the identity of this individual and their participation in the course.

2018-19

AIT College Account
Dighi Hills
Pune-411015

Payment Voucher

No. : **715** Dated : **20-Nov-18**

Particulars	Amount
Account :	
Mech- R&DE/workshop/Projects	**8,728.00**
Through :	
Bank of Baroda A/C No 12490100001250	
On Account of :	
003623 isued to sm Gaikwards twds paper presentation	
Amount (in words) :	
Indian Rupees Eight Thousand Seven Hundred Twenty Eight Only	
	₹ 8,728.00

Receiver's Signature: Authorised Signatory

National Society of Fluid Mechanics & Fluid Power INDIA since 1973

7th International and 45th National Fluid Mechanics and Fluid Power Conference (FMFP-2018)

IIT Bombay, Mumbai | 10-12 Dec 2018

iit bombay हीरक जयंती २०१८ Diamond Jubilee 2018 Achieving Excellence Together

Certificate

This is to certify that .....Sanjay Gaikwad.....has presented a paper titled. Investigation of Heat Transfer & Fluid flow characteristics in Straight & Zigzag micro-channel with & without Nano fluid as working medium. in the 7th International and 45th National Fluid Mechanics and Fluid Power Conference (FMFP-2018) held during December 10-12, 2018 at IIT Bombay, Mumbai, India.

Amit Agrawal

Prof. Amit Agrawal
Organizing Secretary
Department of Mechanical Engineering
IIT Bombay.

Prof. Atul Sharma
Secretary
National Fluid Mechanics and Fluid Power
India.

2018-19

AIT College Account
Dighi Hills
Pune-411015

Payment Voucher

No. : **1270** Dated : **29-Mar-19**

Particulars	Amount
Account :	
Mech- R&DE/workshop/Projects	**9,320.00**
Through :	
Bank of Baroda A/C No 12490100001250	
On Account of :	
Being CNo 004173 issued to Dr JD Patil for presentation in 27th NSCS-27 at Mumbai.	
Amount (in words) :	
Indian Rupees Nine Thousand Three Hundred Twenty Only	
	₹ 9,320.00

Receiver's Signature: Authorised Signatory

2

iit bombay
हीरक जयंती २०१८
Diamond Jubilee 2018
एक साथ प्रगति की ओर
Achieving Excellence Together

NSCS-27

27th National Symposium on Cryogenics and Superconductivity
16th to 18th January, 2019
IIT Bombay

Certificate

This is to certify that Mr./Ms./Dr. *Jitendra Patil*

has participated/presented a paper on *Experimental Study of Oscillation Controlled Heat Transport Tube: An Application of Shuttle Heat Transfer*

(oral/~~poster~~) in the 27th National Symposium on Cryogenics and Superconductivity (NSCS-27) hosted by IIT Bombay.

Milind D. Atrey
Chair, NSCS-27

Himanshu J. Bahirat
Co-Chair, NSCS-27

AIT College Account

AIT College Account
Dighi Hills
Pune-411015

Payment Voucher

No **244** Dated : **29-Jun-18**

Particulars	Amount
Account :	
Comp- R&DE/Workshop/Projects	6,000.00

Through :
Bank of Baroda A/C No 12490100001250

On Account of :
003304 issued to Sagar rane twds refund of registration fee to students

Amount (in words) :
Indian Rupees Six Thousand Only ₹ 6,000.00

Receiver's Signature

Authorised Signatory

ARMY INSTITUTE OF TECHNOLOGY
Dept of Comp Engg
PUNE 15

2nd ISEA International Conference on Security & Privacy

January 9-11, 2019 • MNIT Jaipur, India

CERTIFICATE OF PARTICIPATION

This is to certify that Mr./Ms./Dr. **Sagar Rane** from Savitribai Phule Pune University Pune, India has participated in the 2nd ISEA International Conference on Security & Privacy (ISEA-ISAP 2018) organized at Department of Computer Science and Engineering, Malaviya National Institute of Technology Jaipur held during January 9-11, 2019 and presented his/her paper titled

BlockSLaaS: Blockchain Assisted Secure Logging-as-a-Service For Cloud Forensics

Prof. Manoj Singh Gaur
IIT Jammu
General Chair

Prof. Vijay Laxmi
MNIT Jaipur
Organizing Chair

AIT College Account
Dighi Hills
Pune-411015

Payment Voucher

No **756** Dated **7-Dec-18**

Particulars	Amount
Account :	
Comp- R&DE/Workshop/Projects	6,000.00

Through :
Bank of Baroda A/C No 12490100001250

On Account of :
Being C No 003659 issued agst pymnt for reimbursement of fee regn for pub of paper (IEEE) to Prof SR Dhore

Amount (in words) :
Indian Rupees Six Thousand Only

₹ 6,000.00

Receiver's Signature.

Authorised Signatory

ARMY INSTITUTE OF TECHNOLOGY
Dept of Comp Engg
PUNE-15

Conference Info
Conference Proceeding of
International Conference on Recent Innovation in Engineering , Science and Management (ICRIESM-2018)
at The Institution of Engineers, India, Maharashtra State Centre, Khadye Marg, Mumbai, Maharashtra, India
on 8th April 2018, ISBN: 978-93-87433-19-9

Extracting News from Online Database – News Clustering based on Content Ranking

Prof.(Dr) S.R.Dhore
Mandeep Singh, Pawan Kumar, Sachin Choudhary
Army Institute of Technology, Pune

Abstract— We present NewsMaster, an approach to collect, cluster and categorize and select news articles from Internet.Due to the perception of cheap publishing, organizations have been producing enormous amount of content online since the hidden cost of maintenance and usability has always been neglected. This presents the opportunity for automatically maintaining crisp and usable content, especially in news articles. In this paper, we use machine learning algorithm to extract features from different classes of content and cluster them under an umbrella topic. For each cluster, we then go on to predict popularity of documents using additional features based on the content only. We conduct our experiments on different news corpuses. Our study also serves to remove information redundancy in multiple articles.

Keywords—News, redundancy, content popularity, machine learning

I. INTRODUCTION

News articles are very dynamic in nature due to continuously developing nature of the event and parallel reporting of the same, thus they have a very short span of life. The ease and low cost of online content creation and sharing have changed the traditional rules of competition for public attention. News sources now concentrate a large portion of attention on online mediums where they can disseminate their news effectively and to a large population. Due to the time-sensitive post aspect and intense competition for attention in the socially connected digital platform, accurately estimating the extent to which a news article will spread on the web is extremely valuable to journalists, content providers, advertisers and news recommendation systems. However, predicting the online popularity of online news articles is a challenging task. First, context outside the web is often not readily accessible and elements such as local and geographical conditions and various circumstances that affect the population to make this prediction extremely difficult. Furthermore, network properties such as the structure of social networks that are propagating the news, influence variations among members and interplay between different sections of the web add other layers of complexity to this problem. Most significantly, intuition suggests that content of an article must play a significant role in its popularity. Content that resonates with most of readers such as a major worldwide event can be expected to garner wide attention while specific content relevant only to a few may not be as successful. Content that is up-to-date and highlights all aspect of that article.

The news data for our study has been collected from News Aggregator Dataset from Kaggle. To generate features and classify the articles, we have used Multinomial Naive Bayes. To remove redundant information, we perform specific topic-wise clustering in a certain timeframe. For each cluster, we analyze the contents of new articles and use those for prediction of the popularity prior to publishing. Our work shall also help content writers to remove irrelevant, outdated, trivial and redundant content.

II. BUSINESS

- **Content Caching and Traffic Management**There is a hidden cost to publishing content, the cost to review and maintain the content. The millions of articles also affect the usability and maintainability of the site. In the long run, it is necessary to tackle redundant, outdated and trivial content which has been cursing the site.
- **Advertising** This work can find its application in content-based advertisement along-side news pieces. It will optimize ad-placement logistics and revenues.
- **News Aggregation** With our current event driven clusters knowledge base, we predict the popularity of written articles to be published in that

Conference Info
Conference Proceeding of
International Conference on Recent Innovation in Engineering , Science and Management (ICRIESM-2018)
at The Institution of Engineers, India, Maharashtra State Centre, Khadye Marg, Mumbai, Maharashtra, India
on 8th April 2018, ISBN: 978-93-87433-19-9

domain. It will allow content writer to write more relevant and less redundant pieces that can make it different from current flowing articles. We have been aggregating up-to-date content rich articles ignoring social backlinks.

♦ **Trends Forecasting** Since the cache contains most popular pieces from different news events, we can show current trends with no redundancy. This data helps in forecasting future trends.

III. LITERATURE SURVEY

The work by Martin Weber[1] generates a comparison between different news sources and approaches followed by them as in Table 1.

SCOPE	APPROACH	EXAMPLES
Global	Limited amount of news according to user's region & timeframe, Newsblaster, Google News, Yahoo News, Bing News	Newspapers, magazines, news web sites, news broadcast on TV/radio
Resort	Politics / Business / Local / Sports / Feuilleton / Technology, Entertainment / Music / Leisure.	Weblogs, Rivva, Blogrunner, Sections of Newsblaster / Google News
Sub-Resort	Specialized areas / topics within resorts e.g. Sports ~ Soccer, Technology ~ Apple	Specialized Sites (editorial) e.g. football365.com, 9to5mac.com
Social	Most liked / linked / favorited stories in timeframe	Twitter, favstar.fm, Google+, Rivva, zite, trap.it, Fever, Wavii
Social (Personal)	Linked / liked / favorited stories from peers (and evt. outsiders) in social network	Google News (personalized version) Instapaper, zite, trap.it, Facebook, Twitter
Keyword-based	Filter streams of news in timeframe according to fixed keyword(s) / interest(s) or rules	Yahoo Pipes, Google Alerts, Google API, advanced / custom Google Search
Mashups	mix of two or more of the above-mentioned techniques to filter, aggregate, cluster news	Yahoo Pipes, trap.it, Zite, Rivva, Techmeme Newsblaster (content summaries)

Table 1. Classification of news through various media

IV. SOLUTIONFRAMEWORK

Fig 1. Shows high level overview of solution framework

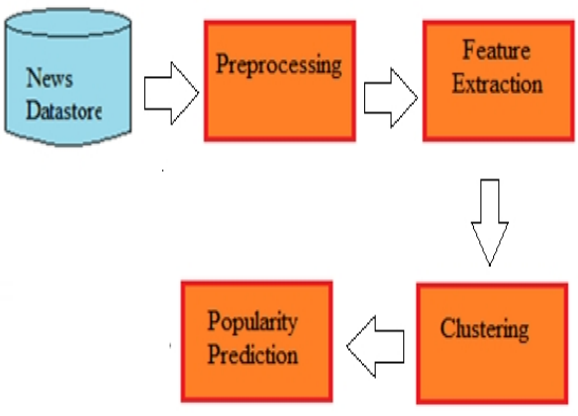


Fig. 1 Solution Framework

A. Preprocessing

We preprocess the data to make processing more meaningful.

- **Filtering** Removal of markup, punctuation and special characters from sentences.
- **Tokenization** Splitting of text into individual units.
- **Stemming** Reduction of words to their base forms
- **Stop words Removal** Deletion of words that do not convey any special meaning.
- **Pruning** Removal of words that do appear with a low frequency throughout the text.

The result of these preprocessing steps is a set of feature words.

B. Text Understanding

Text understanding consists in reading texts formed in natural languages, determining the explicit or implicit meaning of each element such as words, phrases, sentences and paragraphs, and making

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inferences about the implicit or explicit properties of these texts.

TF-IDF

To get importance of word in news corpus, we used tf-idf algorithm. The tf-idf value
increases proportionally to the number of times a word appears in the document and is offset by the frequency of the word in the corpus, which helps to adjust for the fact that some words appear more frequently in general. *tf-idf = (1 + log(tf)) * log(N/dfw)*

Defining,

tf: term frequency (the count of words in headlines)

idf: inverse document frequency

N: number of documents (number of news headlines)

dfw: document frequency of term (number of headlines in which word appears)

MODELS

For classification, we created models using deep learning and machine learning classifiers. We made a 3-layer deep learning model (Fig 2) and for machine learning we created classifier using SVM and Naïve Bayes. We achieved maximum accuracy of model (0.89) using Naïve Bayes and with SVM classifier, accuracy achieved is 0.84, the accuracy of deep learning model was much lower(0.36). It is due to nature of dataset, deep learning performs much better on very huge dataset and the data present for out training is already classified into categories(business, medical, entertainment and technology). So, we are using Naïve Bayes Classifier for this paper.

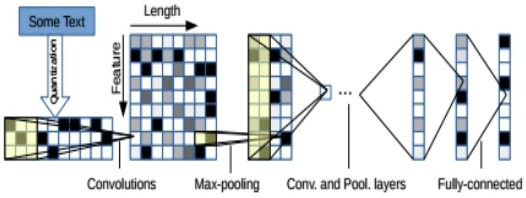

Fig. 2 Deep ConvNets model illustration for feature extraction

C. Clustering

In recent years, internet has become a mainstream medium and offers opportunity for large-scale production and distribution. With more news than ever, it has become increasingly difficult to find relevant news. Regardless which approach is taken and which services are used, one may be confronted with multiple news about the same event within the field of interest. The importance of a news event creates the need for a regular detailed coverage and hence, duplicates and redundant pieces. During high-peak of interest to a topic, there is no limit to number of duplicates produced. We need to manually filter and review the relevant news pieces. Existing approaches like Weber [1]cluster news pieces based on similarity of textual content. We intend to use deep learning feature vectors for clustering news items into highly specific cluster from a news event. Clustering algorithm k-means does not work because it requires number of clusters beforehand. As the number of clusters will never be fixed, we use Average-link agglomerative clustering. We believe that the cluster should be densely connected to an event and thus, average-link distance.

D. Popularity Prediction

We are motivated to predict popularity of article beforehand only from content based features and store only a plausible set of articles from each cluster. We intend to generate a score for each of the articles unlike categorizing them into classes.

Features: The choice of features is motivated by multiple questions. Does the source agent reach many readers? Does the language connect with the reader? Has the article became outdated? Do we have some information in the news piece or not? Is the news worthy of a read? These questions helped us in designing following five features.

- **Age** The date of publication of news given by the dataset. We remove few recordswith missing dates.
- **Text Quality** The ratio of size of document before and after preprocessing.
- **Source Quality** The popularity of source of the content given by initial number of hits provided by the source. If missing, we use the popularity of news agent. This is log-normalized to account for high range of hits.
- **Subjectivity** This examines whether an article is written in more emotional, touchy tone, where it connects with the reader. We make use of subjectivity classifier from Ling pipe, a natural language toolkit.
- **Named Entities** We hypothesize that well-known named entities will cause a further spread of the article. For instance, articles on

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Narendra Modi are more likely to be popular among Indian Readers as compared to others. We make use of Stanford CoreNLP to process named entities. We rate entities based on their prominence or past popularity in the media.

E. Experimental Evaluation

A) Dataset:

1) **News Headlines of India**[7] This dataset consists of 16 years of categorized headlines focused on India.
2) **News Aggregator Dataset**[8] This dataset consists of headlines and categories of 400k news stories from 2014.

B) Baseline:

1) **News Aggregators** We conduct an internal survey to verify initial results of the pipeline when compared with different news agents and aggregators like Google News.

V. OUTPUT

NewsMaster is a web page with the latest news(last two days), the news of the day is the lead. Below, cluster of stories are presented. The news is divided into four categories, i.e. Business, Entertainment, Medical and Technology. Further the articles are ranked based on table 2.

Feature	Description
Sentiment Score	Positive articles on top and negative ones below the list
Age	Difference between published date and today's date
Source	The top source is decided based on number of visitors on website, e.g. For technology news, Fig 3
Text Quality	The ratio of article data before and after preprocessing
Named Entities	Country a person or location belongs to

Table 2. Article features

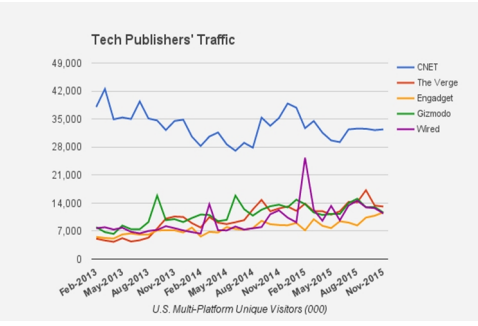

Fig 3. Number of visitors from Feb 2013 to Nov 2015

VI. CONCLUSION

In this paper, we improve the quality of news cache and recommendations by predicting popularity of articles prior to publishing. The need for the same arises from the stiff competition among different news agencies and aggregators. To remove redundant information, we make highly specific clusters of news items. Finally, we predict the most popular pieces in different clusters to provide the set of most popular articles, which is then used for multiple use-cases in content caching, advertising, forecasting and recommendation. With an initial survey, we ensure inceptive results of the pipeline versus different competitors. Lastly, we compare with different baselines to ascertain quality of our work.

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