



Sanjivani Pratisthan Mumbai Sanchalit

S. P. I. T. POLYTECHNIC, KURUND

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CodeCraft

A brighter future

**DEPARTMENT
OF
COMPUTER
ENGINEERING**

"In this issue, we highlight the cutting-edge research, outstanding students, and dedicated faculty that make our department a hub for innovation and excellence."

2024-25



Department of Computer Engineering



From the Principal's desk

Dear students, Faculty and Readers, It is with great pride and enthusiasm that I introduce "CodeCraft". The official technical magazine of Computer Department, S.P.I.T Polytechnic.

This magazine is a Testament to the Innovation, and Continuous learning in ever-evolving field of Computer Engineering. This edition highlights cutting-edges, research, students projects, faculty contributions and industry insights, offering valuable perspective on the future of engineering. My sincere appreciation to Computer Engineering Department, faculty and editorial team for their dedication in bringing this initiative to life. I look forward to seeing "CodeCraft" grow as a beacon of knowledge and inspiration for entire engineering community. Best wishes!

Prof. Mr. S. D. Kapse (Principal)



From the desk of our head of the Department

Dear Students, Faculty and readers, It gives me immense pleasure to present "CodeCraft", The official technical magazine of the "Computer Engineering" department, S.P.I.T Polytechnic. The department often collaborates with industries, governments, and academic Institutions on research in areas such as Software Development by using different platforms, Software Testing, Cyber Security etc.

The department regularly arranges seminar, workshop from industry experts & our Department Alumni for student as well as for staff and also organizes industry visits for students. The department also offers various add on trainings to cope up with the latest trends in technology. The track record of result is also excellent; many times College topper is from Computer Department.

Students are having talents and creativity which are being explored by extra co-curricular activities Programming contests, project competition etc. organized under different College activities. Every year our students got lots of achievements in both academics and extra-curricular activities.

Lastly, I congratulate the Editor and sincere efforts taken by my faculty members and students for the achievement of Computer Department and I wish all of them a very happy and lifelong learning with great success in their bright future!!

Prof. Miss. T. S. Pawar (HOD, CO)



Department's Vision :

Produce "Creators of Innovative Technology"

Department's Mission :

Provide sound technical foundation in computer engineering through Comprehensive curriculum and application oriented learning.

Editor's Desk

We, the faculty of the Computer Engineering department, Computer engineering encompasses a wide range of specializations, from software development to hardware design, and from networking to cybersecurity. We encourage you to explore your passions and find your niche within this vast and exciting field. Stay tuned as we continue to explore the world of technology, where innovation never stops! Best regards.

Prof. Mrs. S. S. Walunj
Lecturer, Computer Engineering



Student's Desk

Myself Ankit Vishnu Sangale. I am studying in Computer Department in our college. My experience in our college in all years is very good. The staff of our department is very supportive. They always guide us in each & every activity. They always solve our problems any time. Our college provide all new & updated facilities to us. Different types of reference books & magazines are available in our library. I thankful to our principal and all faculty of our college.



"PAPER PUBLISHED IN

NATIONAL OR INTERNATIONAL JOURNALS BY OUR STUDENTS"

Lung and Pancreatic Tumor Characterization in the Deep Learning Era: Novel Supervised and Unsupervised Learning Approaches. (Python)

Itirvi Thara¹, Anshu Sangal², Gokul Mahajan³, Aryan Kale⁴, Prof. Miss. T. S. Pawar⁵

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Abstract: Risk stratification (characterization) of tumors from radiology images can be more accurate and faster with computer-aided diagnosis (CAD) tools. Tumor characterization through such tools can also enable non-invasive cancer staging, prognosis, and foster personalized treatment planning as a part of precision medicine. In this paper, we propose both supervised and unsupervised machine learning strategies to improve tumor characterization. Our first approach is based on supervised learning for which we demonstrate significant gains with deep learning algorithms, particularly by utilizing a 3D convolutional neural network and transfer learning. Motivated by the radiologists' interpretations of the scans, we then show how to incorporate task-dependent feature representations into a CAD system via a graph-regularized sparse multi-task learning framework. In the second approach, we explore an unsupervised learning algorithm to address the limited availability of labeled training data, a common problem in medical imaging applications. Inspired by learning from label proportion approaches in computer vision, we propose to use proportion-support vector machine for characterizing tumors. We also seek the answer to the fundamental question about the goodness of "deep features" for unsupervised tumor classification. We evaluate our proposed supervised and unsupervised learning algorithms on two different tumor diagnosis challenges: lung and pancreas with 1018 CT and 171 MRI scan, respectively, and obtain the state-of-the-art sensitivity and specificity results in both problems.

Keywords: Risk stratification

1. INTRODUCTION

The advent of deep learning has significantly advanced the medical field, particularly in the early detection and characterization of tumors. This paper focuses on the use of deep learning techniques in the diagnosis of lung and pancreatic tumors, two of the most challenging and prevalent cancers. Accurate and timely identification of these tumors is crucial for effective diagnosis, treatment planning, and patient prognosis.

Current methods primarily rely on supervised learning approaches, which require labeled data for training models. However, unsupervised learning techniques are emerging as valuable alternatives, providing insights from unlabeled data, which is abundant in medical imaging. By combining both supervised and unsupervised learning methods, the goal is to improve tumor detection, reduce the reliance on large labeled datasets, and enhance the accuracy and efficiency of diagnosis.

The integration of these advanced techniques has the potential to not only increase diagnostic accuracy but also enable personalized treatment plans, ultimately improving patient outcomes. Through innovative deep learning models, this research aims to revolutionize cancer detection and pave the way for more automated and reliable healthcare solutions.

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A SECURE DIGITAL CERTIFICATE APPLICATION USING BLOCKCHAIN THROW SMART CONTRACTS

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ABSTRACT

From a constant record of cryptocurrency transactions, blockchain technology has developed into a programmable interactive environment for creating honest, distributed apps. To our knowledge, no prior attempt has employed blockchain technology to create a secure and unchangeable scientific data provenance management framework that automatically checks the provenance records, ignoring the fact that it has been used to address a number of issues. In this study, we use blockchain as a platform to enable reliable data provenance management, verification, and collecting. Numerous investigations indicate that the certificate issuing authority appear to have compromised the security credentials of student data, with approximately one million graduates departing annual. Events that result in the graduation certificate being counterfeited whilst there is not viable anti-forgery mechanism, private information. This work suggests a safe control technique for digital certificate-based accessibility of information in digital currencies to address this problem. Without confirming the third-party participant's cryptographic identity style, the recommended method develops an adequate authenticating mechanism for private data in blockchain by integrating blockchain and electronic certificate technology. Multiple signers can sign a fair contract using blockchain technology thanks to the high-efficiency network forwarding technique suggested in this study.

Keywords: Hashing, digital certificate, Blockchain, as well as Hyperledger.

1. INTRODUCTION

The recordings and commencement certificate include secret data that should not be readily available to others. Therefore, a system that can ensure that the data in such a document is authentic—that is, that the document has come from a legitimate source and is not a fake—is desperately needed. Furthermore, just authorized people should be able to use the document's content because it should be confidential. Blockchain technology is utilized to increase the security, legitimacy, and confidentiality of graduation certificates while lowering the frequency of certificate forgeries. Digital signatures are a specific instance of a pertinent technology that uses in records to offer nonrepudiation, integrity, and authenticity. It does, however, have serious security flaws and lacking a few functions that are essential to obtaining a qualification certificate. Therefore, it utilizes the keys for verification of documents amendments but does not initiate the automated validation of the public key certificate's status. If the key has been compromised, this might lead to a counterfeit being approved. Additionally, the signed document itself has not been validated, but the signer's public key certificate has. The signed document itself is a certificate in the sense of an e-qualification certificate, and it may have a validity term (e.g. The issue at hand is to certificates, thus merely digitally signing the document is insufficient to resolve it. Nakamoto's 2008 collaborative digital currency served as the model for blockchain technology. It is challenging to build a reliable partnership within two unfamiliar organizations in the absence of a third-party headquarters. By employing distributed node verification and mechanisms for consensus, blockchains can solve the problem of node trust in decentralized systems. The act of transferring the value of digital assets through private data access in blockchains has the potential to significantly alter the present network architecture from the "information Internet" to the "value Internet." Blockchain technology can facilitate a reliable transaction between two parties without the need for a middleman. Speeches and commencement documents include private information that should not be readily available to third parties. Therefore, a system that can ensure that the data in such a document is authentic—that is, that it came from a recognized source and is not a fake—is desperately needed. Furthermore, just authorized people should be able to use the document's content because it should be secret. Blockchain technology is utilized to increase the security, legitimacy, and secrecy of graduation certificates while lowering the frequency of certificate forgeries. www.ijrjets.com ©International Research Journal of Modernization in Engineering, Technology and Science [5795]

An Efficient Spam Detection Technique for IoT Devices using Machine Learning. (Java)

Itirvi Thara¹, Meghana Pawar², Sakshi Avastar³, Prof. Salunke N.S.⁴

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Abstract: Millions of devices with sensors and actuators linked via wired or wireless channels for transmission of data make up the Internet of Things (IoT). In years to come, the amount of data that these devices release will grow substantially. In such a setting, machine-learning algorithms can be important in maintaining blockchains-based verification and security, as well as in detecting errors to enhance the security and stability of Network of Things systems. Attacks on the other hand, use machine learning algorithms to take advantage of flaws in intelligent IoT-based systems. Inspired by this, this research suggests using machine learning to detect spam on IoT devices. This approach assesses five machine learning models with an array of measured.

Keywords: Internet of Things

1. INTRODUCTION

1.1 Target
The main objective of this research is to provide an extensive and comprehensive evaluation of the state of the art in the field of review spam detection using a range of machine learning techniques and to establish a methodology for future studies.

The Internet of Things (IoT) allows possible for real-world items to implement and merge regardless of their geographical locations. To resolve security threats such as intrusions, spoofing attacks, DoS attacks, jamming, eavesdropping, spam, and malware, IoT applications need to protect user privacy.

1.2 SCOPE
This project's primary goals are to provide an extensive and comprehensive evaluation of the state of the art in the field of review spam detection using a range of machine learning techniques and to establish a methodology for future studies. The Internet of Things (IoT) allows possible for real-world items to implement and combine irrespective of their geographical locations. Privacy and protection measures are essential yet difficult to implement in such a network management and control environment. To resolve security threats such as intrusions, spoofing attacks, DoS attacks, jamming, eavesdropping, spam, and malware, IoT applications need to protect user privacy. For instance, wearable technology should protect privacy by collecting and transmitting user health data to a linked smartphone; it has been located.

1.3 CURRENT SYSTEM

- Denial of service (DDoS) attacks: To prevent IoT devices from accessing different services, the attackers may attack the target database with unexpected queries. DDoS has the ability to consume all of the service provider's resources.
- RFID attacks: These are attacks that target an Internet of Things device's physical layer. Common attacks that can occur at the sensor node include brute-forcing cryptographic keys, attacks on availability, attacks on authenticity, and attacks on secrecy.

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A SECURE DIGITAL CERTIFICATE APPLICATION USING BLOCKCHAIN THROW SMART CONTRACTS

From a constant record of cryptocurrency transactions, blockchain technology has developed into a programmable interactive environment for creating honest, distributed apps. To our knowledge, no prior attempt has employed blockchain technology to create a secure and unchangeable scientific data provenance management framework that automatically checks the provenance records, ignoring the fact that it has been used to address a number of issues. In this study, we use blockchain as a platform to enable reliable data provenance management, verification, and collecting. Numerous investigations indicate that the certificate issuing authority appear to have compromised the security credentials of student data, with approximately one million graduates departing annual. Events that result in the graduation certificate being counterfeited whilst there is not viable anti-forgery mechanism, private information. This work suggests a safe control technique for digital certificate-based accessibility of information in digital currencies to address this problem. Without confirming the third-party participant's cryptographic identity style, the recommended method develops an adequate authenticating mechanism for private data in blockchains by integrating blockchain and electronic certificate technology. Multiple signers can sign a fair contract using blockchain technology thanks to the high-efficiency network forwarding technique suggested in this study.

FACILITATING ATTENDANCE MANAGEMENT: AUTOMATIC MONETIZATION THROUGH FACE RECOGNITION

In our daily lives, human faces are crucial, mostly for identifying individuals. In order to uniquely identify a person, face recognition, a component of biometric identification, takes a person's facial traits and stores them as a unique face print. Because of its multiple uses, biometric facial recognition technology has drawn the interest of numerous researchers. Face recognition technology's non-contact method makes it superior to other biometric-based recognition methods including iris, palm, and finger prints. Without making touch or interacting with the person, facial recognition systems can also identify them from a distance. Nowadays, face recognition technology is used at train stations, airports, and social media sites like Facebook. At crime the investigation of crimes. Crime reports can also use the face recognition approach, and a person can be identified by their photo, which can be saved in a database. Facebook automates the tagging process by using facial recognition technology. Large datasets and intricate features are needed for face recognition in order to recognize a person under a variety of circumstances, including changing lighting, age, posture, etc. Recent studies indicate that facial recognition systems have improved. Techniques for recognition have advanced significantly over the past ten years. However, at the moment, the majority of facial recognition methods can only function properly when there are very few persons in a single frame, in controlled lighting, and with the right placement of faces and sharp pictures. Large data sets and intricate features are required for face recognition in order to distinguish between various people by adjusting various barriers such as lighting, posture, and age. Facial recognition technology has advanced significantly in the last several years. There has been a significant advancement in the field of facial recognition over the past ten years. At the moment, the majority of facial recognition systems function well when there aren't many faces in the image. Additionally, these approaches have been evaluated with regulated lighting, appropriate facial expressions, and clear photographs. This paper's suggested facial recognition system for the attendance system can identify several individuals in a picture without any control on illumination, position of face.

3 Days Workshop on Mobile Application Development

Three day Workshop on “Mobile Application Development” for Third year Computer Engineering students was organized by the Department of Computer Engineering on March 11th & 13th, 2025. There were 40 participants, who attended the session. The resource person Mr. Varad Gulsalkar expert was invited from “PROAZURE SOFTWARE PVT LTD”, Pune.

Overview:

Android App Development Workshop mainly focuses on how to use Android OS for building your own Android Application. Only the basic knowledge of programming is required for Android App Development, you do not have to be a geek for it. The workshop will start from the basics like designing layouts and building complex layouts. Once the basics of Android are done, we will begin with building Apps.

The duration of this workshop will be Three consecutive days, with Six hours session each day in a total of eighteen hours, properly divided into theory and hand on practical sessions.



2 Days Workshop on Trouble Shooting on Computers and its Peripherals

Department of Computer Engineering is organized workshop on “Trouble shooting on Computers and its Peripherals” dated from 04/02/2025 to 05/02/2025 in Microprocessor Lab S.P.I.T. College. Mr. Surendra E. Bhdakwad Deep Computers has given Hands on Training for Hardware in the Microprocessor Lab. He handled the session about assembling the system (motherboard) and gave demonstration for the same. Information was given regarding the RAM and its types, SMPS, API, components of motherboard. He also gave demonstration for assembling the optical cable (RJ45). There was a questioning session at the end of demonstration which was interactive and informative to the students.

Extra Curricular Activities by Our Students

Mocc's Courses

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CERTIFICATE OF COMPLETION

Rutuja Ramdas Dhanwate

has successfully completed the online course:

Python for Beginners

This professional has demonstrated initiative and a commitment to deepening their skills and advancing their career. Well done!

2nd February 2025

Certificate code : 7854892



Krishna Kumar
CEO, Simplilearn

CERTIFICATE OF COMPLETION

Madhavi Santosh Kadam

has successfully completed the online course:

Python for Beginners

This professional has demonstrated initiative and a commitment to deepening their skills and advancing their career. Well done!

Krishna Kumar
CEO, Simplilearn

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CERTIFICATE OF COMPLETION

Swanand Navnath Sabale

has successfully completed the online course:

Python for Beginners

This professional has demonstrated initiative and a commitment to deepening their skills and advancing their career. Well done!

13th March 2025

Certificate code : 8035241



Krishna Kumar
CEO, Simplilearn

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CERTIFICATE OF COMPLETION

Pratiksha Santosh Nagare

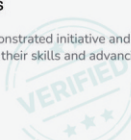
has successfully completed the online course:

Python for Beginners

This professional has demonstrated initiative and a commitment to deepening their skills and advancing their career. Well done!

22nd January 2025

Certificate code : 7801889



Krishna Kumar
CEO, Simplilearn

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CERTIFICATE OF COMPLETION

Vaidya Shivani Baban

has successfully completed the online course:

Python for Beginners

This professional has demonstrated initiative and a commitment to deepening their skills and advancing their career. Well done!

23rd January 2025

Certificate code : 7810096



Krishna Kumar
CEO, Simplilearn

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CERTIFICATE OF COMPLETION

Divya Chandrakant Jadhav

has successfully completed the online course:

Python for Beginners

This professional has demonstrated initiative and a commitment to deepening their skills and advancing their career. Well done!

31st January 2025

Certificate code : 7844431



Krishna Kumar
CEO, Simplilearn



Student's Achievements



Participation in
State Level
Competition
2025 at
Puranmal Lahoti
Government
Polytechnic,
Latur
Sponsored by
MSBTE



Winners of Innovision 2k25 at SPIT Polytechnic, Kurund.



Winner - Eloquution Competition organized by Shivba Sanghatana.



3rd Price - Poster Presentation at Samarth Polytechnic, Belhe



2nd Price - PPT Presentation at Shree Samarth Polytechnic,
Mhase Phata

Participation in Sports



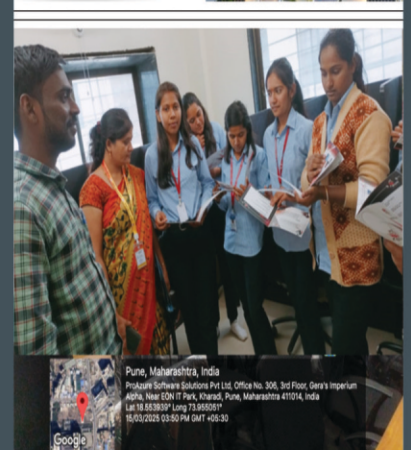
राष्ट्र सह्याद्री
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**कॅरम क्रीडा स्पर्धेत
कुरुंद शाळेचे यश**

निघोज : श्री छत्रपती शिवाजी महाराज कॉलेज ऑफ इंजिनिअरिंग, नेमी, अहिल्यानगर येथे मंगळवारी (दि. ०४ फेब्रुवारी २०२५) रोजी संपन्न झालेल्या अंतरपदविका विभागीय आयडीएसएसए क्रीडा स्पर्धेत एस. पी. आय. टी. पॉलिटेक्निक, कुरुंद कॉलेजच्या कॅरम या खेळाच्या संघाने अंतिम सामन्यात संजीवनी पॉलिटेक्निक, कोपरगाव या कॉलेजच्या संघावर मात करीत विजय संपादन केला. या विजयामुळे कुरुंद कॉलेजचा कॅरमचा विजयी संघ नांदेड येथे होणाऱ्या राज्य पातळीवरील स्पर्धेत खेळणार आहे. खेळाडूंना संघ व्यवस्थापक प्रा. किशोरकुमार कोकणे, प्रा. नितेश शेळके आणि क्रीडा विभागप्रमुख प्रा. विक्रान्त मल्लाव यांचे मोलाचे मार्गदर्शन लाभले. विजयी खेळाडू आदित्य मनोज जाधव आणि चैतन्य शहाजी पवार यांनी अनमोल विजय संपादन केल्याबद्दल संजीवनी प्रतिष्ठान मुंबईच्या खजिनदार व महानगर बँकेच्या अध्यक्ष सुमनताई शेळके, सचिव सर्फराज पठाण, महानगर बँकेच्या संचालिका गीतांजली शेळके व स्मिता शेळके, प्राचार्य सुनिदत्त कापसे, सर्व विभागप्रमुख, प्राध्यापक, शिक्षकत कर्मचारी व पालकांनी अभिनंदन केले.



Industrial Visits



Staff Achievements



Participated & completed AICTE
Training and Learning (ATAL)
Academy Faculty Development
Program on AI Beyond the
Basics: Exploring Advanced
Concepts & Real-World
Applications.



FOR ANY ASSISTANCE



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