TULA'S DEHRADUN INSTITUTE | NAAC A+

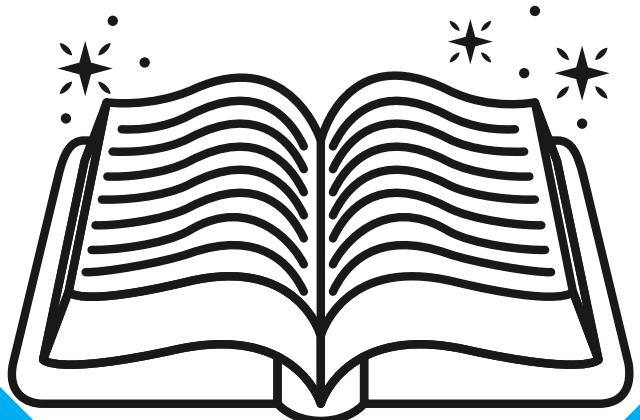
Department of computer science and engineering

डिजिटल Drishti

Apr-June

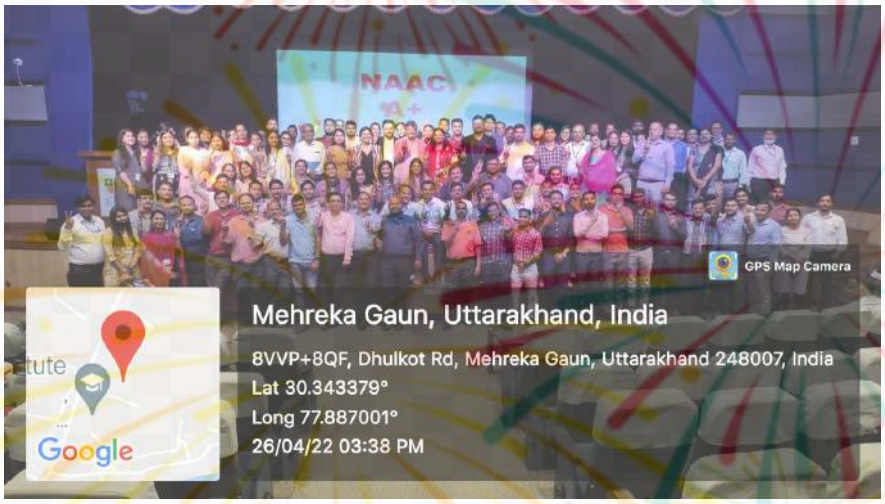
OUTLINE

1. About The Department
2. Departmental Vision & Mission
3. From The Faculty's Desk
4. List Of Faculty Members
5. Editorial Team
6. Departmental Events
7. Research and Innovation
8. Emerging Talent
9.Placement Opportunities



ABOUT THE DEPARTMENT

The Department of Computer Science & Engineering believes in providing the best possible facilities to its students. Our goal is to establish a friendly environment where students can flourish under the direction and support of knowledgeable staff members who have access to the latest resources. . The department is committed to offering the best possible facilities to ensure quality education for the students. In this special edition of our departmental newsletter, we take great pride in sharing a remarkable achievement that underscores our unwavering commitment to academic excellence. Tulas Institute is thrilled to announce that we have been conferred with the prestigious **NAAC A+ accreditation.**



TULA'S DEHRADUN INSTITUTE | NAAC A+

DEPARTMENTALVISIO& MISSION

Vision of the Department

To become the centre of excellence in teaching, research and innovative practices for computing.

Mission of the Department

DM 1: To provide a learning ambience to enhance programming skills for problem solving.
DM 2: To integrate the software industry and academia in order to utilise technology for research, innovation and entrepreneurship.
DM 3: To develop professionals with a solid foundation who can think outside the box to adapt green computing solution.
DM 4: To provide a comprehensive computing environment that meets the highest global standards for higher education and lifelong learning.
DM 5: To create ethical, skilled engineers through theoretical understanding and practical implementations.

FROM THE FACULTY'S DESK

Mr.Sandip Vijay

In this edition of our department newsletter, we are proud to highlight a significant milestone in the illustrious journey of Tulas Institute. We are thrilled to announce that Tulas Institute has been awarded the prestigious NAAC A+ accreditation, a testament to our unwavering commitment to excellence in education.We express our sincere gratitude to all our staff members for their invaluable contributions, cooperation, and unwavering support throughout this journey. Together, we continue to strive for greatness and set new benchmarks in the field of education.
Congratulations once again to everyone at Tulas Institute for this remarkable accomplishment! 🌟

Mr.Raghav Garg

I Welcome and greetings to the freshest issue of the CSE's newsletter ‘ डिजिटल Drishti’. In this edition of our departmental newsletter, we are thrilled to share a momentous achievement that fills us with immense pride and joy. Tulas Institute has been awarded the prestigious NAAC A+ accreditation, marking a significant milestone in our journey of academic excellence. This remarkable accomplishment reflects the collective dedication and hard work of every member of our institution. From faculty to staff, administrators to students, each has contributed significantly to this success. We extend our heartfelt gratitude to everyone involved for their relentless efforts throughout the NAAC accreditation process. Congratulations to the entire Tulas Institute family on this extraordinary achievement!

LIST OF FACULITY MEMBERS

Dr. Sandip Vijay

Dr. Raghav Garg

Dr. Sanjeev Kumar

Dr. Lokesh Kumar

Dr. Sunil Semwal

Dr. Sandeep Kumar

Dr. Tripuresh Joshi

Dr. Suman Pant

Dr.Sachin Kumar

Ms. Ritu Pal

Ms. Rashmi Mishra

Ms. Sakshi Koli

Mr. Sanjay Kumar

Ms. Shivali Pundir

Mr. Anurag Kumar

Ms. Suchi Johari

Mr.B.K Sharma

Ms. Arti Goel

Mr. Rakesh Kumar

Ms. Monika Belwal

Ms. Neha Chauhan

Ms. Suchi Jain

Ms.Pratibha Dimri

Mr. Kumar Yashpak Sinha

Ms. Santwana Goel

Ms. Preeti Raturi

EDITORIAL TEAM

Dr. Sachin Kumar
(Faculty coordinator)

Dr. Lokesh Kumar
(Faculty Coordinator)

Amit Shah
(B. Tech. CSE 3rd Year)

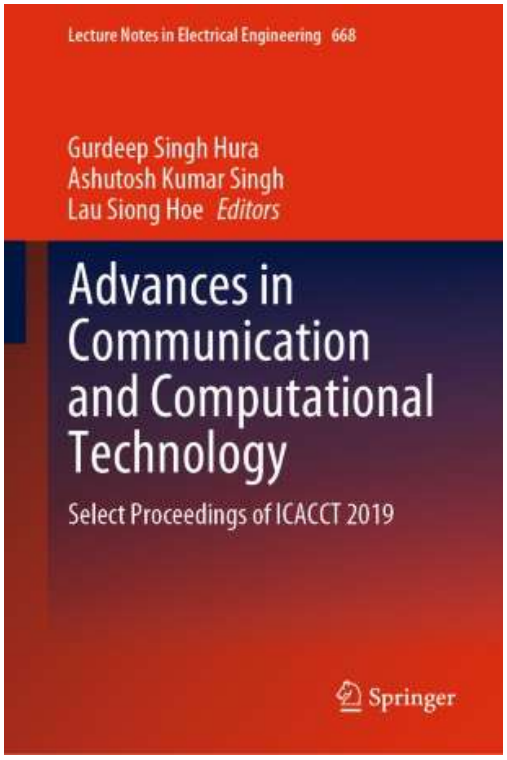
Ashu Pandey
(B. Tech. CSE 3rd Year)

Advances in Communication and Computational Technology: Select Proceedings of ICACCT 2019Stable Optimized Link Heuristic Using Cross-Layering for QoS of Secured HANETs

Author: Dr. Sandip Vijay **Chapter: 22**

Abstract:

Link availability, mobility, scalability, transmitting and receiving power, path loss model, signal quality and intelligent resource utilization heuristics are numerous factors for enhancing the network performance of HANETs. Quality of service and quality of experience can be improved with cross-layer, cross-domain and cross-network design which extracts the critical information from different platforms as required by dynamic behavior and heterogeneity of the network. Distance between the nodes, packet size, link availability, mobility model, and transmission range are simulation parameters which can degrade the heuristic performance of the network. In this paper, we worked on optimized link heuristic under heterogeneous network where handover plays an important role. We observed that in ad hoc network, the performance of optimized link heuristic is stable as compared to reactive protocols. 6LoWPAN with congestion control policy performs efficiently for IoT scalable architecture, and protocol stack handling is suitable for energy-efficient device.

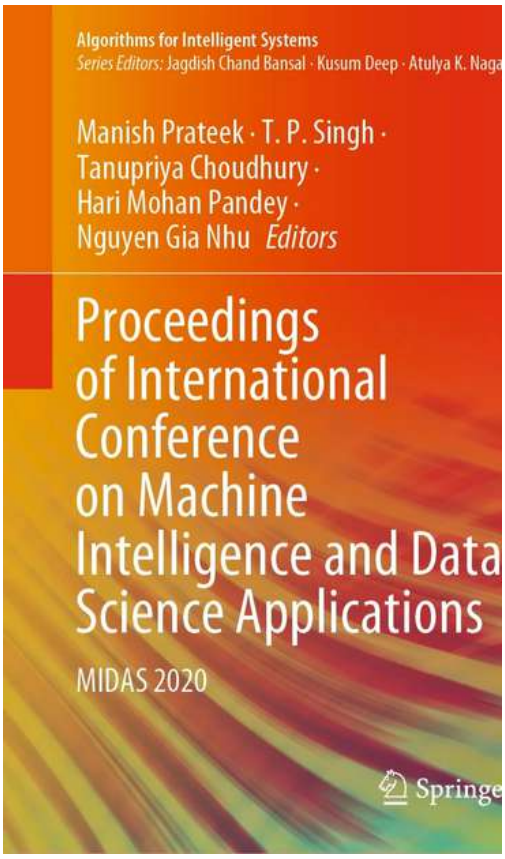


Web Crawler for Ranking of Websites Based on Web Traffic and Page Views

Author: Dr.Suman Pant**, Pages 117-127**

Abstract:

Algorithms for crawling of the web, indexing and the order of search results are determined by the ranking of pages. In this paper, we have designed one web crawler that is based on page views and traffic density. We are using the popularity of a web page as a ranking parameter for the ordering of the website according to the amount of traffic visiting these sites. This approach provides the user with a platform where the user can discover the searched content based on popularity which is not being implemented till now.



Vijay, S., & Chauhan, B. (2021). Antenna miniaturization for IoT applications. Next-Generation Antennas: Advances and Challenges, 105-117

Abstract:

Long-range wireless connectivity is the critical issue for many Internet of Thing (IoT) applications especially for those that need to be mobile. The communication among gadgets and other entities relies on radio wave, that's at risk of many attacks. Size anticipation is one of the questions while thinking about IoT devices, in conjunction with radio performance and charge. IoT is an extremely convoluted heterogeneous organization stage. The antennas used for IoT bundles are needed to demonstrate three essential qualities, as (i) miniature length, (ii) electricity performance and (iii) capability to perform in multi-antenna climate. IoT gadgets show highlights IEEE 802.15.3 A (high-data-rate WPAN) standard such as high data transmission, basic equipment setup, low force utilization, little size, low obstruction, omnidirectional patterns and a direct stage reaction. Latest expertise in 3D-antenna is assumed to overcome some of the disadvantages identified in conventional antennas where it is required for a certain application. Twodimensional equivalents of volumetric meta-material engineered as Meta-surfaces (MTSs) are to achieve extraordinary electromagnetic properties in 3-dimensions. Dipoles and waveguides horns produced low bandwidth in most of the remote gadgets. Consequently, high data transmission with the smallest antenna measurements with the basic plan is needed for any handheld IoT gadgets.

DEPARTMENTAL EVENTS

Workshop on 3D Printing and Applications: A Recap

Dr. Sunil on April 13,2022 workshop provided a comprehensive look into the world of 3D printing. Participants explored various 3D printing technologies, their applications across industries like manufacturing and healthcare, and the design software used to create 3D models. The workshop likely included hands-on experiences and discussions on the future of this transformative technology. Attendees gained valuable knowledge with the potential to spark innovation and new ideas in their respective fields.

- Diverse 3D Printing Technologies: The workshop explored various types of 3D printers and the materials they use.
- Applications Across Industries: Participants discovered how 3D printing is revolutionizing sectors like manufacturing, healthcare, aerospace, and education.
- Design and Software Focus: The workshop delved into 3D modeling software and design considerations for successful printing.
- Hands-on Experience: Attendees likely gained practical experience with 3D printing technology.
- Future of 3D Printing: Dr. Sunil discussed emerging trends and the exciting future of this transformative technology.
- Knowledge and Inspiration: Participants left the workshop with valuable knowledge and inspiration to apply 3D printing in their respective fields.

Seminar on Menstrual Hygiene

On May 20, 2022, Dr. Bharti led a crucial seminar on menstrual hygiene, tackling a topic often shrouded in silence and misinformation. The event aimed to raise awareness, dispel myths, and empower individuals with knowledge about menstrual health and hygiene.

- Understanding the Menstrual Cycle: Participants gained in-depth knowledge about the biological and emotional aspects of menstruation.
- Menstrual Hygiene Options: The seminar explored various menstrual products and their proper use.
- Dispelling Menstrual Myths: Misconceptions and cultural taboos surrounding periods were addressed and debunked.
- Menstrual Health and Hygiene: The importance of hygiene practices and awareness of menstrual disorders was emphasized.
- Open Dialogue and Empowerment: The seminar fostered open conversations about menstruation, promoting understanding and empowering individuals.

Uttarakhand startUp Aspirant Meet

May 30, 2022, marked a significant day for aspiring entrepreneurs in Uttarakhand as they gathered for the "Uttarakhand Startup Aspirant Meet." Led by Mr. Rakesh, a prominent figure in the startup ecosystem (exact affiliation unknown), the event aimed to ignite the entrepreneurial spirit and provide aspiring business owners with the knowledge and connections needed to thrive.
Potentia

- Startup Ecosystem Overview: The event provided insights into the current startup landscape, trends, and opportunities in Uttarakhand and beyond.
- Idea Generation and Validation: Aspiring entrepreneurs learned methods for brainstorming, refining, and validating their business ideas.
- Legal and Financial Guidance: The meet offered valuable information on legal requirements, regulations, and funding options for startups.
- Networking and Mentorship: Participants connected with fellow entrepreneurs, experts, and potential investors, fostering a supportive community.

EMERGING TALENT

Student's Research Paper

Our students Kashish Yadav, Jatin Giri, Ojas Shrivastava, Rohit Singh Bisht published research paper under the guidance of **Ms. Suchi Johari** topic "Pothole Detection System"

Abstract:
Addressing the persistent challenges of real-time fingertip-gesture-based interfaces for human-computer interactions, our study delves into a novel approach utilizing RGB-D images and fingertip detection. In the realm of AI Virtual Mouse, this innovative method seeks to overcome issues such as sensor noise, changing light levels, and the complexity of tracking fingertips across diverse subjects.To implement this virtual mouse technique, the system extracts the hand's region of interest and the center of the palm from in-depth skeleton-joint information images obtained from a Microsoft Kinect Sensor version 2. This information is then transformed into a binary image. Subsequent steps involve the extraction of hand contours using a border-tracing algorithm and the utilization of the Kcosine algorithm to detect fingertip locations based on hand contour coordinates. In the final stage, the identified fingertip location is mapped to RGB images to effectively control the mouse cursor on a virtual screen. Remarkably, this AI Virtual Mouse system achieves real-time fingertip tracking at 30 frames per second (FPS) on a desktop computer, utilizing only a single CPU and the Kinect V2. Experimental results showcase a high level of accuracy, affirming the system's proficiency in real-world environments with just a single CPU. The introduced fingertip-gesture-based interface not only meets the challenges of human-computer interactions but also provides a seamless and user- friendly means for individuals to interact with computers effortlessly using their hands.

EMERGING TALENT

Student's Articles

Challenges and Concerns:

- We students express concerns about the ethical implications of certain technologies, particularly in areas like artificial intelligence, data privacy, and genetic engineering. They engage in discussions and debates, advocating for responsible innovation and ethical considerations.
- The rapid evolution of technology can also lead to feelings of being overwhelmed or left behind. Students emphasize the importance of accessible education and resources to ensure inclusivity and equal opportunities in the tech world.
- Concerns about the potential job displacement due to automation are also present. However, many believe that technology will create new job opportunities requiring different skillsets, emphasizing the need for adaptability and continuous learning

तकनीक के माध्यम से भविष्य का निर्माण

तकनीक ने मानव जीवन को विस्तृत रूप में परिवर्तित किया है। विज्ञान और तकनीक के अद्भुत उत्पादों ने हमें एक नई दिशा में ले जाया है, जहां हम एक स्वस्थ, सुरक्षित, और उत्तम जीवन जी सकते हैं। तकनीक के माध्यम से हमने अनगिनत संभावनाओं का अनुसरण किया है और नए-नए उत्पादों, सेवाओं, और तकनीकी समाधानों को जन्म दिया है। इस लेख में, हम देखेंगे कि तकनीक के माध्यम से हम कैसे भविष्य को निर्माण कर सकते हैं।

तकनीकी उत्पादों की विस्तारित विकास: तकनीक ने उत्पादों के डिजाइन और विकास में विशाल परिवर्तन लाया है। सबसे पहले, हम विभिन्न उत्पादों की बेहतर गुणवत्ता और प्रदर्शन का आनंद उठा सकते हैं। उदाहरण के लिए, अब हम एक्सेलरेटेड और इलेक्ट्रिक वाहनों का उपयोग करके विद्युत संयंत्रों के प्रदूषण को कम कर सकते हैं। इसके अलावा, तकनीक ने स्वास्थ्य देखभाल, शिक्षा, और संचार के क्षेत्र में भी नए उत्पाद और सेवाओं का विकास किया है जो हमारे जीवन को और अधिक सुखद और आसान बनाते हैं।

तकनीकी समाधानों के उपयोग: तकनीक के उपयोग से हम विभिन्न चुनौतियों का सामना कर सकते हैं और उन्हें समाधान कर सकते हैं। उदाहरण के लिए, तकनीकी उपायों का उपयोग करके हम समुद्री जलवायु परिवर्तन, ऊर्जा संगठन, और अवसाद की समस्याओं का समाधान कर सकते हैं। साथ ही, तकनीकी समाधान हमें उत्तराधिकारिता, सुरक्षा, और अन्य महत्वपूर्ण मुद्दों के साथ लड़ने के लिए मजबूत और विशेषज्ञ उपाय उपलब्ध कराते हैं।

EMERGING TALENT

Student's Articles

Excitement and Curiosity:

- I express a sense of wonder and excitement about the possibilities that technology offers. As a students we are eager to explore new tools and platforms, experiment with ideas, and push the boundaries of what's possible.
- Many view technology as a means to solve real-world problems and make a positive impact on society. They are motivated by the potential to create solutions for issues like climate change, poverty, and access to healthcare.
- The fast-paced nature of technological advancements fuels their curiosity and desire to learn continuously. They embrace online resources, workshops, and hackathons to stay updated and acquire new skills.

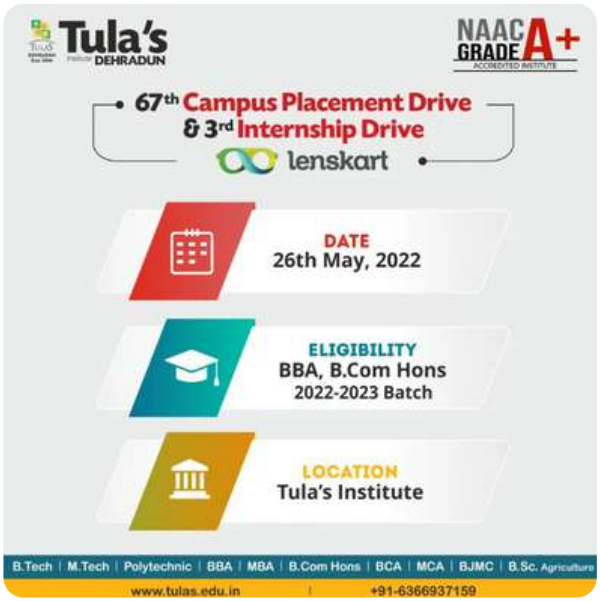
तुला इंस्टीट्यूट देहरादून में पुस्तकालय

तुला इंस्टीट्यूट देहरादून एक विश्वस्तरीय शैक्षिक संस्थान है जो उत्कृष्टता के क्षेत्र में अपना नाम कमाने में अग्रणी है। संस्थान का पुस्तकालय एक महत्वपूर्ण संसाधन है जो छात्रों को ज्ञान के साथ-साथ आत्मनिर्भरता भी प्रदान करता है। यहाँ हम जानेंगे कि तुला इंस्टीट्यूट देहरादून में स्थित पुस्तकालय के बारे में।

तुला इंस्टीट्यूट में पुस्तकालय: तुला इंस्टीट्यूट में स्थित पुस्तकालय एक व्यापक और आधुनिक संसाधन है जो छात्रों को विशेषज्ञता के क्षेत्र में शिक्षा प्रदान करता है। पुस्तकालय में एक विशाल संग्रह है जो विभिन्न विषयों पर पुस्तकें, जर्नल्स, और अन्य संसाधनों को शामिल करता है। यहाँ छात्र और शिक्षकों को विशेषज्ञता, अनुसंधान, और स्वयं-अध्ययन के लिए उपयुक्त सामग्री प्राप्त करने का अवसर मिलता है।

पुस्तकालय की सुविधाएँ: तुला इंस्टीट्यूट के पुस्तकालय में व्यापक सुविधाएँ उपलब्ध हैं जो छात्रों को अध्ययन और अनुसंधान के लिए सहायक होती हैं। यहाँ कुछ मुख्य सुविधाएँ शामिल हैं:

Placement Opportunities



Announcement

Guest Lecture on AI & ML
Ratnesh Kumar Dubey
July 16th, 2022

Workshop on Intellectual Property Rights
Dr. Sandeep Kumar.
August 8th, 2022

Social awareness Workshop on climate
Change on Himalayan Divas
Mrs. Jigyasha Chandhok
September 10th, 2022,

Importance of communication in
career making workshop
Ms. Harshita Chaudhary
September 29th, 2022

राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद

विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

An Autonomous Institution of the University Grants Commission

Certificate of Accreditation

The Executive Committee of the
National Assessment and Accreditation Council
is pleased to declare the
Tula's Institute
Mehre Ka Gaon, Dehradun, affiliated to Uttarakhand Technical University and
Sri Dev Suman Uttarakhand Vishwavidyalay, Uttarakhand as
Accredited
with CGPA of 3.34 on four point scale
at A+ grade
valid up to April 25, 2027

Date : April 26, 2022

Director

EC(SC)/103/1st Cycle/UKCOGN109710