TEXAS INTERNATIONAL COLLEGE

Affiliated to Tribhuvan University
and Managed by Texas International
Education Network
Mitrapark, Kathmandu-07

2nd NATIONAL CONFERENCE
on
"Innovating Higher Education through Management & IT for Good Governance and Sustainable Development"

Friday, 05 September, 2025

CONFERENCE PROCEEDING

Organized By:

...for a complete human being
Texas International College
Research, Learning and Development (RLD) Department
Mitrapark, Kathmandu, Nepal

Supported By:

विश्वविद्यालय अनुदान आयोग
University Grants Commission

त्रिभुवन विश्वविद्यालय
Tribhuvan University (TU)

TEXAS INTERNATIONAL COLLEGE

Affiliated to Tribhuvan University
and Managed by Texas International
Education Network
Mitrapark, Kathmandu-07

[Established: 2010]

2nd NATIONAL CONFERENCE

on

"Innovating Higher Education through Management & IT for Good Governance and Sustainable Development"

Friday, 05 September, 2025

Conference Venue:
Texas International College, Seminar Hall
Chabahil, Kathmandu -07 Nepal

Patron

Prof. Keshav Kumar Shrestha, PhD

Main Organizing Committee

Prof. Sateesh Kumar Ojha, PhD	Chair
Prof. Govinda Prasad Acharya, PhD	Member
Mr. Yubraj Basnet	Member
Dr. Suman Thapaliya	Member
Mr. Yubraj Sapkota	Member
Mr. Kumar Poudyal	Member
Ms. Sarala Karki	Member Secretary

Management Steering Committee

Prof. Govinda Prasad Acharya, PhD	Member
Mr. Bheshraj Pokhrel	Member
Mr. Shyam Sundar Shrestha	Member
Ms. Jitendra Kumar Bakhu	Member
Mr. Narayan Pokhrel	Member

Message from the Desk of Conference Chair

Prof. Sateesh Kumar Ojha, PhD

It is a matter of immense pleasure for me and Texas Family to welcome you all to the second national conference organized by the Research Learning and Development (RLD) Department of Texas International College (TIC), Kathmandu, Nepal, on the theme "Innovating Higher Education through Management & IT for Good Governance and Sustainable Development". The conference will resume at the Texas International College conference hall on September 5, 2025. The overwhelming popularity in the wide use of IT on the one hand and the emerging challenges of organizational sustainability on the other has drawn the concern of research department to convene this national conference of TIC, the goal of this conference taking place on September 5, 2025 will be to investigate the possible ways of integrating IT and management by virtue of which organizational sustainability can be insured in the ever-mounting competitive worldly environment.

With a sense of pride in privilege, the conference organizing committee would like to share that around 100 research papers have been registered. Out of the total collected papers, the committee shows only 55 papers from researchers and scholars that are directly linked to the theme and subthemes of the conference. I take this opportunity to thank all the members of the conference committee for their tireless work in selecting truly resource-based papers to serve the purpose of the national conference.

The conference is gaining momentum with the highlights of several distinguished figures, among them three dignified scholars, Prof Dr. Dev Raj Adhikari, University Grants Commission (UGC) Chairman, Prof. Dr. Deepak Aryal, Vice Chancellor of Tribhuvan University, and prominent keynote speaker Prof. Dr. Achyut Prasad Wagle, Vice Chancellor, KU. The inaugural session will be enriched by highlighting the need for innovation in higher education through effective management. The three speakers, accompanied by distinguished guests, have gathered in one place, making this an unforgettable event. Their valuable speeches will be the main inspiration to encourage us to pursue higher education in the future.

The conference has been scheduled to include technical sessions covering aspects of the pre-envisaged theme and subthemes. The conference committee is highly confident that the scholarly and research-driven papers scheduled for presentation will bring forth innovative ideas on the subject and open up new insights in various dimensions. In addition, the conference's reflection will be on finding out or embracing the integration of information technology and its responsive utilization for organizational success and sustainability.

The committee will be highly obliged and will express sincere gratitude for the splendid contributions extended by our distinguished keynote speakers and the paper presenters. Likewise, we will express our heartfelt appreciation and thanks to dignified persons who will be the special guests, guests, and session chairs of technical sessions of the conference.

Lastly, the Chair of TIEN, Principal of TIC, CoAS, Director of the RLD Department, and faculty and staff involved in the conference all deserve thanks for accomplishing their respective roles in making the conference a success.

Texas International College | Email: research@texascollege.edu.np ii 1st National Conference Proceeding-2025"

Message from the Chief Guest

Prof. Dr. Dev Raj Adhikari
Chairperson of University Grants Commission, Nepal

It is my great delight to extend my best wishes to the Second National Conference 2025 organized by Texas International College. I am honored to join this prestigious academic gathering as the Chief Guest and witness the celebration of research, innovation, and collaboration.

Texas has consistently organized such remarkable conferences in the past, each of which has turned out to be truly marvelous. The commitment and dedication of Texas in fostering academic excellence and research culture are indeed highly appreciable. This year's theme, "Innovating Higher Education through Management and IT for Good Governance and Development," is both timely and significant. It reflects the pressing need to harness the power of technology and management to shape a sustainable future for education and governance.

I wish the organizers, researchers, and participants the very best in their efforts, and I am confident that this conference will once again emerge as a landmark in promoting knowledge, innovation, and academic discourse.

Wishing all the best for organizing similar program in the future.

Best wishes from Chief of Academics

Prof. Govinda Prasad Acharya, PhD

The 2nd National Conference on "Innovating Higher Education Through Management and IT for Good Governance and Sustainable Development" organized by Texas International College is a step forward initiation for the larger benefits of academic/research fraternity on the one hand and the broader societal metaphor on the other. Bearing in mind the overwhelming popularity ever gaining, the focus of the conference laid over innovating management and IT education within the domain of higher education as the main product so as to ensure governance and sustainable societal development, as the ultimate outcome.

From the early day of civilization, humans believed that innovation and improvements are unstoppable in social dimensions. Peeping into this state of 21st century, the process is still on to tap the opportunity. This national conference is the product of the same universal belief. TIC besides being a higher education institution imparting knowledge and skills to students of different academic levels is also a responsive social change agent regularly involved in endeavor like this. Conferences: national and international successfully organized in support of national and international HEIs and Research agencies in the year 2024, have made a great stride in this respect.

I feel proud to mention that TIC is coming up as a prominent academic institution conditioned with blended research in the higher education landscape of Nepal. The platform provided by TIC through this conference to the academicians, researchers, administrators and corporate world is highly appreciable. The views presented by paper presenters, reviews by commentators and the insightful sum ups by the session chairs on theme and subthemes, I believe would open plethora of new dimension of ideas and workable thoughts and practices for good governance and sustainability amidst challenges and failures.

TIC is very much thankful to our Chief Guest Prof. Dr. Dev Raj Adhikari, Chairperson UGC/N, Special Guest Prof. Dr. Deepak Aryal, VC, TU, Keynote Speaker Prof. Dr. Achut Prasad Wagle, VC, KU and distinguished guests of honor for their gracious presence and remarkable and scholastic notes.

In the end, by bringing together academicians, researchers and enthusiasts from different sectors providing opportunity to share experiences and develop a network towards moving further and contributing together for good governance and sustainability, TIC has undoubtedly cited an exemplary deed. May this national seminar foster great discussions and innovative outcomes for all.

Wishing all the best for the grand success of the conference and sincerely appreciate the contributions made by all at different capacity. Thanking all and looking forward similar events in future.

Texas International College | Email: research@texascollege.edu.np

V 2nd National Conference Proceeding-2025

2nd NATIONAL CONFERENCE

Innovating Higher Education through Management & IT for Good Governance and Sustainable Development

Date: September 5, 2025

Venue: Texas International College
Chabahil, Kathmandu -07 Nepal

Sessions at a Glance

1 Plenary Session
Inspiring keynote discussions

4 Parallel Sessions
Engaging research, inspiring the way forward

Contributors
Academia, research fraternity / enthusiasts, public enterprise, corporate sector

50+ Paper Presentations
Cutting-edge research contributions

Key Sub-Themes

Higher Education & Forward Outlook | Management & IT Integration | Artificial Intelligence, Cybersecurity & Digital Transformation | Governance, Sustainability & SDGs

Organized by: Texas International College

Supported by: विश्वविद्यालय अनुदान आयोग University Grants Commission; त्रिभुवन विश्वविद्यालय Tribhuvan University (TU)

Co-organizers: Texas College of Management & IT; Texas Int'l Secondary School

2nd NATIONAL CONFERENCE

Innovating Higher Education through Management & IT for Good Governance and Sustainable Development

CHIEF GUEST, INAUGURATION

Prof. Dr. Dev Raj Adhikari
Chairperson
University Grants Commission, Nepal

SPECIAL GUEST, INAUGURATION

Prof. Dr. Deepak Aryal
Vice Chancellor
Tribhuvan University, Nepal

KEYNOTE SPEAKER, INAUGURATION

Prof. Dr. Achyut Prasad Wagle
Vice Chancellor
Kathmandu University, Nepal

05th September, 2025

Texas International College, Mitrapark, Chabahil

Organized by: Texas International College

Supported by: विश्वविद्यालय अनुदान आयोग University Grants Commission; त्रिभुवन विश्वविद्यालय Tribhuvan University (TU)

Co-organizers: Texas College of Management & IT; Texas Int'l Secondary School

2nd NATIONAL CONFERENCE

ON

INNOVATING HIGHER EDUCATION THROUGH MANAGEMENT & IT FOR GOOD GOVERNANCE AND SUSTAINABLE DEVELOPMENT

Friday, 05 September, 2025

GUESTS OF HONOR/SPEAKERS

Prof. Dr. Keshav Kumar Shrestha
Tribhuvan University
Patron, Texas International College

Prof. Dr. Mahananda Chalise
Dean
Faculty of Management
Tribhuvan University

Prof. Dr. Govinda Pd. Acharya
Former Dean,
Faculty of Management
Tribhuvan University

Prof. Dr. Sateesh Kumar Ojha
Tribhuvan University

Prof. Dr. Lekhnath Sharma
Executive Chairperson
Policy Research Institute (PRI)
Former Vice Chancellor, Nepal Open University

Dr. Deepak Kumar Khadka
Head of Research Department
Policy Research Institute (PRI)

Mr. Manoj Kumar Bhattarai
Director
Laxmi Sunrise Bank

Mr. Umesh Kumar Gupta
Executive Director,
IEDI, Government of Nepal

Organized by: Texas International College

Supported by: विश्वविद्यालय अनुदान आयोग University Grants Commission; त्रिभुवन विश्वविद्यालय Tribhuvan University (TU)

Co-organizers: Texas College of Management & IT; Texas Int'l Secondary School

2nd NATIONAL CONFERENCE

ON

INNOVATING HIGHER EDUCATION THROUGH MANAGEMENT & IT FOR GOOD GOVERNANCE AND SUSTAINABLE DEVELOPMENT

Friday, 05 September, 2025

SESSION CHAIRS & COMMENTATORS

Prof. Dr. Shankar Prasad Khanal
Dean
Institute of Science and Technology (IoST)
Tribhuvan University

Prof. Dr. Subarna Shakya
Institute of Engineering, Pulchowk Campus
Tribhuvan University

Prof. Dr. Gajendra Sharma
Professor,
School of Engineering
Kathmandu University

Prof. Dr. Shree Krishna Shrestha
Expert in Public Management & Governance
Researcher | Academic Leader

Dr. Manoj Shakya
Assistant Professor
School of Engineering
Kathmandu University

Dr. Prity Atal
Assistant Professor
School of Management
Kathmandu University

Dr. Pawan Kumar Sharma
Executive Chairman
Envision Tech Pvt. Ltd.

Mr. Shyam Sundar Shrestha
Principal PhD Scholar
Texas International College

Mr. Chiranjibi Adhikari
Cybersecurity Advisor
IT Software and Technology Committee
Nepal Chamber of Commerce

Ms. Jaya Budhathoki
Chairperson
Good Governance Protection Forum (GGPF)

Organized by: Texas International College

Supported by: विश्वविद्यालय अनुदान आयोग University Grants Commission; त्रिभुवन विश्वविद्यालय Tribhuvan University (TU)

Co-organizers: Texas College of Management & IT; Texas Int'l Secondary School

2nd NATIONAL CONFERENCE

ON

INNOVATING HIGHER EDUCATION THROUGH MANAGEMENT & IT FOR GOOD GOVERNANCE AND SUSTAINABLE DEVELOPMENT

Friday, 05 September, 2025

SESSION CHAIRS & COMMENTATORS

Dr. Chiranjibi Nepal
Former Governor
Nepal Rastra Bank

Prof. Dr. Sudan Jha
School of Engineering
Kathmandu University

Prof. Dr. Binod Krishna Shrestha
School of Management
Kathmandu University

Rajib Subba, PhD
Coordinator, Digital Technology Program
Madan Bhandari University of
Science and Technology

Prof. Dr. Bhoj Raj Ghimire
Head of School of Technology
Nepal Open University

Dr. Kalpana Khanal
Senior Research Fellow
Policy Research Institute (PRI)

Dr. Narendra Raj Paudel
Associate Professor
Central Department of Public
Administration Tribhuvan University

Dr. Hridaya Man Shrestha
Chief Executive Officer
Envision Tech Pvt. Ltd.

Dr. Suman Thapaliya
Director, IT Department
Texas International College

Ms. Sarala Karki
(PhD Scholar)
Director, Research Learning and
Development Department
Texas International College

Organized by: Texas International College

Supported by: विश्वविद्यालय अनुदान आयोग University Grants Commission; त्रिभुवन विश्वविद्यालय Tribhuvan University (TU)

Co-organizers: Texas College of Management & IT; Texas Int'l Secondary School

2nd National Conference on Innovating Higher Education through Management & IT for Good Governance and Sustainable Development

Date: September 5, 2025

Venue: Texas International College, Chabahil, Kathmandu -07 Nepal

Conference Inauguration Schedule

8:00 – 8:45 AM	**REGISTRATION & BREAKFAST**
9:00 – 9:25 AM	**Seat Taking by Chair of Inauguration Program** Mr. Bhesraj Pokhrel, Executive Chairman, Texas International College
	Seat Taking of Chief Guest, Special Guest, Patron, Guest of Honors and Dignitaries
	Inauguration of Conference by Lightening the Butter Lamp Prof.Dr.Devraj Adhikari, Chairperson, University Grants Commission, Nepal Chief Guest of the Program
9:25 – 9:35 AM:	**Welcome Remarks** Shyam Sundar Shrestha, Principal, Texas International College
9:35 – 9:50 AM	**Note on the Perspective of Conference** Prof. Dr. Govinda Prasad Acharya, Former Dean, TU / Chief of Academics, Texas International College
9:50 – 10:05 AM	**Conference Thrusts** Prof. Dr. Sateesh Kumar Ojha, Research Chair, Texas International College
10:05 – 10:20 AM	**Special Guest** Prof. Dr. Deepak Aryal, Vice Chancellor, TU
10:20 – 10:30 AM	**Guest of Honor, Remarks** Prof. Dr. Lekhnath Sharma (PRI) Executive Chairperson, Policy Research Institute Former Vice Chancellor, Nepal Open University
10:30 – 10:40 AM	**Guest of Honor, Remarks** Mr. Manoj Kumar Bhattarai Director, Laxmi Sunrise Bank Limited
10:40 – 10:50 AM	**Guest of Honor, Remarks** Umesh Gupta, Executive Director IEDI, Government of Nepal
11:00 – 11:20 AM	**Keynote Address** Prof. Dr. Achyut Prasad Wagle, Vice Chancellor, KU
11:20 – 11:30 AM	**Remarks by Chief Guest** Prof. Dr. Devraj Adhikari, Chairperson, UGC
11:30 – 11:40 AM	**Vote of Thanks** Mr. Bhesraj Pokhrel, Executive Chairman, Texas International College

Moderator of the Program: Ms. Sarala Karki, Director, Research, Learning and Development Department

Organized by: Texas International College | Supported by: विश्वविद्यालय अनुदान आयोग University Grants Commission; त्रिभुवन विश्वविद्यालय Tribhuvan University (TU) | Co-organizers: Texas College of Management & IT; Texas Int'l Secondary School

2nd National Conference on Innovating Higher Education through Management & IT for Good Governance and Sustainable Development

Date: September 5, 2025

Venue: Texas International College, Chabahil, Kathmandu -07 Nepal

Conference Closing Schedule

5:00 – 5:10 PM	**Welcome Remarks** Yubraj Basnet , Vice Principal, Texas International College
5:10 – 5:20 PM	**Distinguished Remarks** Prof. Dr. Mahananda Chalise, Dean, Faculty of Management, Tribhuvan University
5:20 – 5:30 PM	**Special Remarks** Dr. Chiranjibi Nepal , Former Governor, Nepal Rastra Bank
5:30 – 5:40 PM	**Significant Remarks** Prof. Dr. Keshav K. Shrestha, Patron, Texas International College
5:40 – 6:00 PM	**Certificate Distribution** Prof.Dr. Mahananda Chalise, Dean, Faculty of Management, Tribhuvan University
5:40 – 6:00 PM	**Presentation of Mementos to Dignitaries** Prof. Dr. Keshav K. Shrestha, Patron, Texas International College Prof. Dr. Govinda Prasad Acharya, Chief of Academics, Texas International College
6:00– 6:10 PM	**Thank You Note** Jitendra Kumar Bakhu, Managing Director, Texas International College

11:45 AM – 1:30 PM
Parallel Sessions (Round 1)

1:30 PM – 2:15 PM
Lunch Break (45 minutes)

2:15 PM – 5:00 PM
Parallel Sessions (Round 2)

Organized by: Texas International College

Supported by: विश्वविद्यालय अनुदान आयोग University Grants Commission; त्रिभुवन विश्वविद्यालय Tribhuvan University (TU)

Co-organizers: Texas College of Management & IT; Texas Int'l Secondary School

2nd National Conference on Innovating Higher Education through Management & IT for Good Governance and Sustainable Development

Date: September 5, 2025

Venue: Texas International College, Chabahil, Kathmandu -07 Nepal

INAUGURATION

Seat Taking of Guest of Honours and Speakers

- **Prof. Dr. Devraj Adhikari,** Chairperson, UGC (Chief Guest)
- **Prof. Dr. Deepak Aryal,** Vice-Chancellor, Tribhuvan University
- **Prof. Dr. Achyut Prasad Wagle,** Vice-Chancellor, Kathmandu University (Keynote Speaker)
- **Prof. Dr. Govinda Pd. Acharya,** Former Dean, Faculty of Management, Tribhuvan University
- **Prof. Dr. Sateesh Kumar Ojha,** Tribhuvan University
- **Prof. Dr. Lekhnath Sharma,** Executive Chairperson, Policy Research Institute, Former Vice Chancellor, Nepal Open University
- **Mr. Manoj Kumar Bhattarai,** Director, Laxmi Sunrise Bank
- **Mr. Umesh Kumar Gupta,** Executive Director, IEDI, Government of Nepal
- **Ms. Nikita K.C.,**Education Outreach Coordinator, U.S. Embassy Nepal, Public Affairs Section

Seat Taking of Guest of Honours and Session Chairs / Commentators

- **Prof. Dr. Shankar Prasad Khanal,** Dean, Institute of Science and Technology (IoST), Tribhuvan University
- **Prof. Dr. Subarna Shakya,** Institute of Engineering, Pulchowk Campus, Tribhuvan University
- **Prof. Dr. Shree Krishna Shrestha,** Expert / Researcher in Public Management & Governance
- **Prof. Dr. Binod Krishna Shrestha,** School of Management, Kathmandu University
- **Prof. Dr. Sudan Jha,** School of Engineering, Kathmandu University
- **Prof. Dr. Gajendra Sharma,** School of Engineering, Kathmandu University
- **Prof. Dr. Bhoj Raj Ghimire,** Head, School of Technology, Nepal Open University
- **Dr. Rajib Subba,** Coordinator, Digital Technology Program, Madan Bhandari University of Science and Technology
- **Dr. Narendra Raj Paudel,** Associate Professor, Central Department of Public Administration, Tribhuvan University
- **Dr. Deepak Kumar Khadka,** Head of Research Department, Policy Research Institute (PRI)
- **Dr. Kalpana Khanal,** Senior Research Fellow, Policy Research Institute (PRI)
- **Dr. Manoj Shakya,** Assistant Professor, School of Engineering, Kathmandu University
- **Dr. Prity Atal,** Assistant Professor, School of Management, Kathmandu University
- **Dr. Pawan Kumar Sharma,** Executive Chairman, Envision Tech Pvt. Ltd., Faculty-Texas international college
- **Dr. Hridaya Man Shrestha,** Chief Executive Officer, Envision Tech Pvt. Ltd., Faculty-Texas international college
- **Ms. Jaya Budhathoki,** Chairperson, Good Governance Protection Forum (GGPF)

2nd National Conference on Innovating Higher Education through Management & IT for Good Governance and Sustainable Development

Date: September 5, 2025

Venue: Texas International College, Chabahil, Kathmandu -07 Nepal

CLOSING

Seat Taking of Guest of Honours and Speakers

- **Prof. Dr. Mahananda Chalise,** Dean, Faculty of Management, Tribhuvan University
- **Dr. Chiranjibi Nepal,** Former Governor, Nepal Rastra Bank
- **Prof. Dr. Keshav Kumar Shrestha,** Tribhuvan University, Patron – Texas International College

Innovating Higher Education Through Management and IT for Good Governance and Development September 05, 2025 (Bhadra 20, 2082)				
Before Lunch (12:00–1:30 PM) | 4 Parallel Halls				
Time	Hall 1 / 1005: AI, Data & Intelligent Systems	Hall 2/304 : Cybersecurity & Forensics	Hall 3/Imaginology: Learning, Digital Finance & Leadership	Hall 4/1006: Higher Education, IT & Governance
	Session Chair: Prof. Dr. Subarna Shakya Commentator: Dr. Manoj Shakya Staff Observer: Ms. Kartikee Singh (9844535876)	Session Chair: Dr. Rajib Subba Commentator: Dr. Pawan Kumar Sharma Staff Observer: Mr. Rupak Gadtaula (9816066435)	Session Chair: Prof. Dr. Binod Krishna Shrestha Commentator: Dr. Prity Atal Staff Observer: Mr. Rajan Yadav (9827562902)	Session Chair: Prof. Dr. Gajendra Sharma Commentator: Dr. Bhoj Raj Ghimire Staff Observer: Mr. Durgananda Panjiyar (9803082801)
12:00 – 12:20	AI-Powered Early Detection of Mental Health Disorders via Web-Based Behavior Monitoring Presenter: Ashish Gautam	The Pervasive Threat: Prompt Injection Attacks in Higher Education IT Systems, AI Applications, and Data Integrity Presenter: Saroj Ghimire	Understanding Customer Satisfaction in Digital Payment Systems: Insights from Kathmandu Valley Presenter: Dr. Padam Dongol	Digital Equity and Faculty Stress: Investigating IT Access and Governance in Higher Education Institutions Presenter: Samjhana Chaulagain
12:20 – 12:40	Reinforcement Learning-Based Self-Tuning Databases for Sustainable IT Management in Higher Education Presenter: Sushil Bhattarai	Impact of Modern Encryption on Mobile Forensic Workflows Presenter: Mukesh Tiwari	Leadership Styles and Satisfaction: Identifying What Truly Resonates Presenter: Mridul Basnet and Surendra Joshi	Next-Gen Academia: Empowering Higher Education through IT, AI and Cybersecurity for Good Governance Presenters: Dipak Adhikari Rohit Prasad Pandey
12:40 – 1:00	Game-Based Learning Strategies: A Pathway to Student Motivation and Academic Achievement Presenter: Kumar Poudyal	Security Challenges in IoT for the Education Sector Presenter: Samniwa Angdembe Limbu	Work Culture on National Pride Transport Project Performance of Nepal Presenter: Anupama Karkee	Algorithmic Dharma: Reimagining Governance and Sustainability through Fictional AI Frameworks and Ethical Theories Presenter: Rajkishor Singh
1:00 – 1:20	Impact of Generative AI Tools on Personalized Learning Among Management Students in Kathmandu Valley Presenter: Swochita Thapa	Analysis of Image encryption using chaotic and hyperchaotic approach Presenter: Sukraj Neyong	Perception Of English Language Teachers Teaching in Mixed-Ability Classrooms in Community Schools: A Qualitative Case Study Presenter: Arjun Jung Rayamajhi	Bridging Rural-Urban Divide in Higher Education with ICT Presenter: Umesh Rokaya
1:20 – 1:40	Face Detection & Tracking Presenter: Manoj Bhattarai	From Perimeter to Posture: Securing Physical Devices in IoT with Adaptive Cyber Defense Presenter: Dr.Suman Thapaliya	Industry-academia collaboration for competency-based curricula Presenters: Sambed Timilsina and Prof. Govinda Prasad Acharya, PhD	Cybersecurity Awareness at the Top Level in Co-operative Banks in Nepal: A Corner Stone for Good Governance and Sustainable Development Presenter: Dr. Pawan Kumar Sharma

After Lunch (2:15–5:00 PM) | 4 Parallel Halls				
Time	Hall 1 / 1005: Education, Business, and Sustainable Development	Hall 2/304 :IT & Digital Security	Hall 3/Imaginology: Culture, Society & Philosophy	Hall 4/1006: Information Technology, Systems & Applications
	Session Chair: Dr. Chiranjibi Nepal Commentator: Dr. Prity Atal Staff Observer: Ms. Kartike Singh (9844535876)	Session Chair: Prof. Dr. Shankar Prasad Khanal Commentator: Dr. Pawan Kumar Sharma Staff Observer: Mr. Rupak Gadtaula (9816066435)	Session Chair: Prof. Dr. Shree Krishna Shrestha Commentator 1: Dr. Narendra Raj Paudel Commentator 2: Ms. Jaya Budhathoki Staff Observer: Mr. Rajan Yadav (9827562902)	Session Chair: Prof. Dr. Sudan Jha Commentator: Dr. Hridaya Man Shrestha Staff Observer: Mr. Durgananda Panjiyar (9803082801)
2:15 – 2:35	India's Intra-Regional Export Performance: A Gravity Modeling Approach Presenter: Gyanendra Adhikari	Cybersecurity Challenges in Small and Medium Enterprises (SMEs) in Nepal Presenter:Gobinda Thapa	'Duality' in the Conceptual 'Homeland': An Analysis of the Feeling of Disenchantment and Disorientation upon Homecoming Presenter: Ujeena Rana	Cooling Efficiency in Data Center: Using Air-cooled System Presenter: Manoj Dangol
2:35 – 2:55	Teaching Learning Curve Presenters: Sarala Karki and Asmita Chhetri	SSD-Aware Forensic Readiness: Proactive Strategies for Preserving Digital Evidence in Modern Storage Presenter: Jayaram Pudasaini	Buddhist Philosophy- Theory and Practice in Emotion Regulation Presenter: Upasana Adhikari	ESP32 Based Control of Non-Linear P8 LED Displays Presenter: Pradip Bastola
2:55 – 3:15	Impact of Tourism Promotional Spending on Income in Nepal Presenter: Dr. Sushil Awale	Eco-Friendly Data Centers in Nepal: A Hydropower and Climate-Based Approach Presenter: Jay Prakash Singh	Lived Experiences of Adolescents in Navigating Social Media Presenter: Raju Raut	Nepali Music Recognition System: Leveraging Deep Learning Convolutional Neural Network (CNN) for Multi-Lingual Audio Classification Presenter: Suyog Kadariya
3:15 – 3:35	Influence of learning organization on employee performance in Academic sector Presenters: Rakshya Dhital and Deepa Regmi	AI and IoT-Enabled Remote Learning Ecosystems for Rural and Underserved Areas Presenter: Kartikee Singh	Promoting Green Tourism for Sustainable Hospitality: Opportunities and Challenges in Nepal Presenter: Pankaj diyas	Nepali Handwritten Digits Classification for the paper publication program in the college Presenter: Anamol Chapagain
3:35 – 3:55	Determinants of Faculty Engagement in Higher Educational Institutions Presenter: Narendra Sejuwal and Damodar Niraula	Cryptocurrency in Nepal: Navigating Opportunities and Challenges in a Banned Landscape Presenter: Jeet Narayan	Indigenization of School Counseling: A study on the psychological dimension of counseling in Buddhist karuna model in well-being. Presenter: Ananta Chalise	Applying AI-Driven Sentiment Analysis to Enhance Educational Decision-Making: A Study Based on Student Perceptions Presenters:: Bigyan Pandey, Rupak Gadtaula
3:55 – 4:15	Sustainable Trekking in Nepal: Leave No Trace Practices Presenter: Dr.Surya Bahadur Ghimire	Zero Trust in Banking: AI-Enhanced Network Access Control as the Foundation for Adaptive Cyber Defense in Financial Industry Presenter: Sushant Panta	The Integrated Dynamics of Organizational Business Communication in Nepal Presenter: Srijana Dhakal	Using Community-Led Multimodal AI Agents for the Revival of Regional Accents, Dialects, and Intangible Traditions in Endangered or Extinct Cultures Presenter: Biswa Raj Bajracharya
4:15 – 4:35	AI-Powered Chatbots in Higher Education: Improving Student Experience and Service Delivery Presenter: Mahima Thakulla	Exploring Consumer Trend in the Kathmandu Valley and its Economic Implications Presenter: Dipak Thapa	The Impact of E-Governance on Public Service Quality and Administrative Efficiency: A Case Study of Budhanilkantha Municipality Presenters: Saroj Dhital, Rageena Shrestha	
4:35 – 4:55		Statistical Analysis of Digital Payment Statistics of Past 58 Months in Nepal Presenter: Dipesh Neupane		

Table of Content

Note: *Only the abstracts reviewed and approved by the Research Committee are included in this proceeding.*

Nepali Handwritten Digits Classification for the Paper Publication Program in the College

Anamol Chapagain
Email: chapagainanamol@gmail.com

Abstract

Thrust The Nepali Handwritten Digits Classification Using CNN presents an image classification system based on Convolutional Neural Networks (CNN) for recognizing digits cropped from A4-sized paper sheets written on the papers manually. The images were captured using different mobile phone cameras, resulting in varying resolutions and lighting conditions.

Objectives The objectives of this paper are to investigate image classification system based on Convolutional Neural Networks (CNN) for recognizing digits cropped from A4-sized paper sheets written on the papers manually. The images were captured using different mobile phone cameras, resulting in varying resolutions and lighting conditions.

Methods Applied methods of this study include pre-processing steps such as resizing, normalization, and structured folder organization for supervised learning. The CNN architecture is carefully designed and trained using TensorFlow and Keras frameworks. It is evaluated based on accuracy and performance across a diverse set of test images to ensure its robustness against variations in quality and background noise.

Findings Findings of this study propose a promising real-world application which can be used in automated exam evaluation systems, handwritten form digitization, number plate recognition, and other optical character recognition (OCR) tasks. In addition, technology suggested by the study is hoped that it can significantly reduce manual workload, improve data processing speed, and enhance digital accessibility in sectors like education, government services, and finance.

Implications Overall, the study showcases the potential of CNNs in building practical and efficient digit recognition systems under real-world constraints.

Keywords *nepali handwritten digits, cnn, convolutional neural network, image classification*

Indigenization of School Counseling: A Study on the Psychological Dimension of Counseling in Buddhist Karuṇā Model in Well-Being

Ananta Chalise
Email: ananta@texascollege.edu.np

Abstract

Thrust Through the integration of the Buddhist Karuṇā model, this qualitative inquiry studied the indigenization of school counseling. Comparing Euro-American centric models like Cognitive Behavioral Therapy and Person-Centered Approaches which stress freewill and emotional expression, Nepali society values moral faith, collectivism, and spiritual wellbeing.

Objectives The study aims to explore culturally relevant counseling models and examine the fit of the Buddhist Karuṇā model in Nepali school counseling, guided by critical-transformative and indigenous paradigms.

Methods Participatory action research was employed for the Nepalikaran of school counseling practices. Means of information were collected through interviews, focus group discussions, document analysis, classroom observations, and reflective journaling with school counselors, teachers, students, parents, and Buddhist monks using purposive sampling. Thematic analysis was conducted to identify key patterns.

Findings Thematic analysis disclosed five key themes: karuṇā as an ethical-emotional healing practice, relational selfhood in student well-being, epistemic dissonance with Western models, structural barriers to cultural integration, and enhanced moral resilience through karuṇā-based interventions. Participants highlighted that emotional suffering is often linked to spiritual imbalance and relational conflict, suggesting that indigenous knowledge can be central to the counseling process.

Implications The study concludes that karuṇā is not only a cultural value but also a culturally transformative pedagogical and therapeutic tool. It advocates for the indigenization and decolonization of school counseling by including indigenous epistemologies and Buddhist psychology, offering a culturally responsive and spiritually grounded approach to promote student well-being in Nepali schools.

Keywords *indigenization, de-colonization, indigenous knowledge, karuṇā, school counseling, psychological wellbeing*

Work Culture and National Pride Transport Project Performance in Nepal

Anupama Karkee (PhD Scholar)
Email: anu.karkee1@gmail.com

Abstract

Thrust Nepal's National Pride Transport Projects are critical for economic development and national connectivity, yet many face delays, cost overruns, and community dissatisfaction. Weaknesses in organizational work culture—particularly in flexibility, involvement, and consistency—have emerged as barriers to effective project delivery. These shortcomings raise concerns about aligning project practices with mission objectives, sustaining community trust, and ensuring long-term project performance.

Objectives This study examines the status of organizational work culture and its influence on the performance of Nepal's National Pride Transport Projects using Denison's model (involvement, mission, adaptability, and consistency).

Methods A qualitative research design was adopted. Data were collected through in-depth interviews and focus group discussions with contractors, project managers, and community members. Thematic analysis, supported by NVivo software, was used to code and identify emerging patterns.

Findings Contractors highlighted a shared understanding of project guidelines and procedures, though they noted budget assurance as a distinguishing factor between National Pride and regular projects. Project managers observed that most administrative processes remained unchanged, while community members emphasized challenges such as inadequate consultation and delayed payments for land acquisition.

Implications The study reveals cultural and procedural weaknesses that undermine both community trust and project sustainability. Strengthening participatory mechanisms, enhancing flexibility, and aligning organizational practices with project mission are essential to improving the effectiveness of National Pride Transport Projects.

Keywords *work culture, denison model, transportation infrastructure, national pride projects, nepal*

Perception of English Language Teachers Teaching in Mixed-Ability Classrooms in Community Schools: A Qualitative Case Study

Arjun Jung Rayamajhi
Email: arayamajhi16@gmail.com

Abstract

Thrust English language teachers in community schools in Nepal face challenges in addressing the diverse academic needs of students in mixed-ability classrooms. Effective application of Differentiated Instruction is essential to improve learning outcomes and equity.

Objectives This objective identifies techniques for addressing diverse student needs in mixed-ability classrooms through the application of Differentiated Instruction.

Methods The study adopted a qualitative case study design, collecting data via interviews with four teachers and classroom observations in Kawasoti Municipality to explore pedagogical practices and challenges.

Finding Implementation of Differentiated Instruction enhances learning for students with varied abilities; however, it remains underutilized due to insufficient training, inadequate policies, lack of systemic support, and prevailing conventional teaching methods.

Implications The findings provide guidance for educators and academic administrators to promote equity, responsiveness, and inclusive pedagogy in mixed-ability classrooms, highlighting the need for teacher professional development and educational reforms in community schools.

Keywords *pedagogy, differentiated instruction, mixed-ability classrooms, english language teaching, inclusive education*

AI-Powered Early Detection of Mental Health Disorders via Web-Based Behavior Monitoring

Ashish Gautam

Email: ashish.gautam@texascollege.edu.np

Abstract

Thrust The rising prevalence of mental health disorders, coupled with limited access to timely diagnosis and treatment, underscores the need for proactive, scalable solutions. Traditional detection methods often fail to identify early signs of stress, anxiety, or depression, particularly in under-resourced and remote areas, highlighting a critical gap in mental healthcare delivery.

Objectives This study explores the potential of artificial intelligence (AI) in the early detection of mental health disorders through analysis of web-based behavioral data, including social media activity, browsing patterns, and digital interactions.

Methods The study employs machine learning and natural language processing to detect behavioral and cognitive patterns indicative of mental health risks. A conceptual framework integrates ethically sourced, anonymized digital data with AI models while ensuring user consent, data privacy, and explainable AI mechanisms.

Findings The proposed system demonstrates the potential to identify early signs of mental health deterioration, enabling timely interventions before clinical symptoms escalate. The research contributes to computational mental health and underscores the viability of scalable, non-invasive digital monitoring for early detection.

Implications Responsible integration of AI into mental health systems can enhance early detection while maintaining ethical standards. Web-based behavioral monitoring offers a cost-effective, scalable solution to supplement traditional mental healthcare, particularly in rural or underserved populations, and can inform policy and practice for digital mental health interventions.

Keywords *artificial intelligence, early detection, mental health, web-based behavior monitoring, machine learning, natural language processing, ethical AI, computational mental health*

Using Community-Led Multimodal AI Agents for the Revival of Regional Accents, Dialects, and Intangible Traditions in Endangered or Extinct Cultures

Bishwa Raj Bajracharya
Email: bis2me@gmail.com

Abstract

Thrust Endangered and extinct cultures face the risk of losing regional accents, dialects, and intangible rituals, which are critical markers of cultural identity and heritage. Traditional preservation efforts have largely focused on text-based documentation, neglecting the audio-visual and performative aspects essential for authentic cultural transmission. This gap underscores the need for innovative, community-centered approaches to safeguard and revive living cultural practices.

Objectives This study develops Community-Led Multimodal AI Agents that capture, model, and teach regional accents, dialects, and intangible rituals in endangered or extinct cultures, in collaboration with elders and indigenous communities, while ensuring ethical governance, cultural sovereignty, and intergenerational knowledge transfer.

Methods The study employs multimodal inputs (audio, video, gesture) and immersive outputs via AI technologies, including animated dubbing, VR/AR platforms, and refined speech blending. Community participation is central, with digital workshops and immersive learning experiences used for iterative evaluation and refinement of AI agents.

Findings Community-led digital workshops and immersive experiences effectively facilitate engagement with intangible heritage, promote intergenerational knowledge transfer, and set new ethical and technical standards for cultural revival using AI.

Implications Community-Led Multimodal AI Agents offer a scalable and ethically responsible approach to preserving and transmitting endangered or extinct cultural practices. This model safeguards cultural sovereignty, ensures meaningful participation, and provides innovative, immersive methods for living cultural revival, serving as a blueprint for future AI-driven heritage preservation initiatives.

Keywords *community-led AI, multimodal AI agents, cultural preservation, regional accents, dialects, intangible heritage, VR/AR, intergenerational transmission, ethical AI*

Applying AI-Driven Sentiment Analysis to Enhance Educational Decision-Making: A Study Based on Student Perceptions

Bigyan Pandey
Email:bigyan.pandey1@gmail.com
Rupak Gadtaula
rupak.gadtaula@texascollege.edu.np

Abstract

Thrust Artificial Intelligence (AI) presents transformative prospects for enhancing the quality of educational decision-making through the capacity to conduct real-time analysis of feedback from significant stakeholders. In this research, AI-driven sentiment analysis is administered to student feedback obtained from a structured Likert-scale questionnaire.

Objectives The main objective of this study is to uncover dominant sentiments and derive actionable insights from student feedback regarding their learning experiences and the practices of their educational institutions. By applying AI-driven sentiment analysis to structured Likert-scale questionnaire responses, the study seeks to provide a comprehensive understanding of students' perceptions, identifying trends that might be overlooked by conventional evaluation methods.

Methods In this research, AI-driven sentiment analysis was applied to student feedback collected through a structured Likert-scale questionnaire. Sentiments expressed in the feedback were categorized into positive, neutral, and negative classes.

Findings The investigation uncovered trends and patterns in student feedback that could be missed by conventional evaluation techniques, providing a more nuanced understanding of student opinions. The analysis revealed the distribution of positive, neutral, and negative sentiments, highlighting areas of strength as well as aspects of the learning experience and institutional practices that require improvement.

Implications The study showcases the potential of incorporating AI-driven sentiment analysis into educational feedback mechanisms to enhance decision-making processes. By providing a quick, scalable, and objective method to analyze student perceptions, institutions can make data-informed improvements in curriculum design, teaching methods, and policy development.

Keywords *AI in education, sentiment analysis, student feedback, decision-making, educational technology*

Next-Gen Academia: Empowering Higher Education through IT, AI and Cybersecurity for Good Governance

Dipak Adhikari
Email: dipsri27@gmail.com

Rohit Prasad Pandey
Email: rp13108@gmail.com

Abstract

Thrust The higher education sector, at present, is at a tipping point requiring transformation at major strategic fronts. Driven by multifarious pressures of students like digitization requiring flexibility, AI reliant workforce, skill-development focus, fiscal pressure and better operating efficiency the quest of technology meeting those have been an ongoing endeavor. This study moves towards this direction.

Objectives The ultimate objective of this research is to assess how do information technology and artificial intelligence act as the prime movers radically transforming both the learning experience and administrative functions within the armory of higher education. Besides, the study also aims to explore on how AI handles time-consuming administrative tasks, freeing of faculty and staff to focus more on strategic, student-centered activities for standardized teaching-learning activities and con-currently research and development.

Methods The education sector has remained a prime target for cyber attack and criminals are exploiting vulnerabilities in legacy system to steal valuable data requiring a multi-layered strategy for the effective defense to implement. In a state like this, the proposed study through a rigorous literature review and in-depth integration and focus group discussions with knowledgeable experts, develops an innovative model/framework of governance addressing the critical concerns.

Findings The findings of the study stress on developing a workable framework so as to ensure the ethical implementation of technology, navigating complex data privacy while addressing critical areas such as AI bias and academic integrity.

Implications The formulated framework as suggested by the study will have a positive impact on overall teaching, learning and research, in addition to, integrating ethical, technical and legal components for developing a resilient, equitable and trustworthy 'Next-Gen Academia'.

Keywords *higher education, digital transformation, data governance, digital equity, good governance*

Exploring Consumer Trends in the Kathmandu Valley and their Economic Implications

Dipak Thapa
Email: dipkthapa1@gmail.com

Abstract

Thrust Rising consumerism in the Kathmandu Valley, driven by imports, challenges sustainable economic growth and highlights gaps in domestic production and policy.

Objectives This study examines factors shaping urban consumption, evaluates its economic effects, and identifies strategies to shift toward a production-based economy.

Methods A mixed-method approach was used, combining surveys of households and businesses with secondary economic data. Quantitative and qualitative techniques identified key consumption drivers.

Findings High disposable income, urbanization, and brand preference fuel demand for imported goods, widening the trade deficit and suppressing local industry. A significant mismatch exists between consumer preferences and domestic supply.

Implications Policies must promote local entrepreneurship, incentivize domestic production, and implement import substitution to redirect consumption toward positive economic outcomes.

Keywords *urban consumption, consumer trends, economic implications, entrepreneurship, import-driven economy, kathmandu valley*

Statistical Analysis of Digital Payment Months in Nepal

Dipesh Neupane

Email: er.dipeshneupane@gmail.com

Abstract

Thrust The digital payment methods are widely used around the world from undeveloped Africa to highly sophisticated regions like US and Europe. In the Nepalese context, the growth is phenomenal, especially after COVID-19 pandemic which forced adoption. India and the region of South Asia and Southeast Asia are among the predominant markets for global fintech and digital payment solutions with widespread adoption and novelty in the payment methods.

Objectives This study analyzed the past 58 months data of payment statistics published by PSD so as to observe the key trends, predict the future of payment in Nepal, and shed light in the insights hidden behind those numbers. The research primarily conducted as an exploratory study trying to get insights from the data. This is the first research in the Nepalese context carried out by the researchers to unveil the insights of digital payment statistics in Nepal.

Methods This study adopted trend analysis of the past 58 months data of payment statistics published by PSD so as to observe the key trends, predict the future of payment in Nepal. The research primarily conducted as an exploratory study based on the available secondary data.

Findings This study analyzed the past 58 months data of payment statistics published by PSD to observe the key trends, predict the future of payment in Nepal, and shed light in the insights hidden behind those numbers. The research primarily conducted as an exploratory study trying to get insights from the data.

Implications This study analyzed the key trends, predict the future of payment in Nepal, and shed light in the insights hidden behind those numbers. It will help policymakers and the industry to direct their attention and resources to the right direction in shaping the payment industry of Nepal towards its further journey.

Keywords *digital payment, python, statistics, card, qr*

Cybersecurity Challenges in Small and Medium Enterprises (SMEs) in Nepal

Gobinda Thapa

Email: thapa677@gmail.com

Abstract

Thrust Small and Medium Enterprises (SMEs) are vital and play a significant role in Nepal's economic growth. However, SMEs in Nepal face critical cybersecurity challenges due to limited financial resources, insufficient skilled personnel, and low awareness of cyber risks. As a result, they remain highly vulnerable to threats such as phishing, malware, and ransomware and needs to be protected from such vulnerability threats.

Objectives This study surveyed SME owners and employees in Nepal to investigate their cybersecurity practices and experiences. The study also aims to understand the vulnerabilities and identify the practical solutions to overcome the impediments.

Methods The primary method employed in the study is survey where SME owners and employees in Nepal were surveyed to collect data on their cybersecurity practices, experiences, and awareness of cyber risks.

Findings The results reveal that many SMEs rely on outdated technology, lack formal security policies, and provide minimal cybersecurity training to staff. Consequently, these businesses are frequently at risk of cyberattacks, which can lead to severe financial losses and even business closure.

Implications To address this gap, the paper proposes an E3-NSME cybersecurity protocol (Easy, Economic, Efficient) – a set of straightforward, cost-effective, and efficient measures tailored for resource-constrained SMEs. Recommended steps include basic cyber hygiene practices, affordable security tools, regular training, and leveraging government support. The insights of the study aim to guide Nepali SMEs and policymakers in strengthening cyber resilience, thereby helping secure the nation's SME sector in the digital era.

Keywords *cybersecurity, phishing, malware, ransomware, security policies, cybersecurity awareness*

India's Intra-Regional Export Performance: A Gravity Modeling Approach

Gyanendra Adhikari

Email: thapa677@gmail.com

Abstract

Thrust Intra-regional trade in South Asia remains relatively underdeveloped despite shared borders, cultural ties, and economic complementarities. India, as the region's largest economy, plays a pivotal role in shaping the direction and intensity of these trade flows. However, there is limited empirical evidence that systematically explains the determinants of South Asian countries' exports to India, creating a gap in understanding the effectiveness of regional integration efforts.

Objectives This study estimates intra-regional export flows from seven South Asian countries to India using a gravity model framework and to identify the key economic and policy factors influencing these exports.

Methods The study employs panel data estimation covering seven countries from 2001 to 2021, applying a gravity modeling approach to analyze the effects of economic size, distance, and trade policies on export performance.

Findings The results reveal that GDP, population, distance, and foreign trade policy index significantly influence export flows to India. The analysis highlights that tariffs negatively affect trade, while geographic distance poses a persistent barrier to export expansion. A notable finding is the increasing intra-regional trade within the South Asian Association for Regional Cooperation (SAARC), with India emerging as the leading destination for member states' exports.

Implications The findings underscore the need for regional trade policies that address distance-related barriers and tariff structures while promoting greater economic integration among SAARC nations. India's central role suggests that its trade policy orientation will be critical in shaping the future of intra-regional export performance.

Keywords *intra-regional trade, gravity model, exports, SAARC, India*

Eco-Friendly Data Centers in Nepal: A Hydropower and Climate-based Approach

Jay Prakash Singh

Email: jpsingh.b4u@gmail.com

Abstract

Thrust The rapid expansion of digital services of varied nature have undoubtedly contributed towards the well-being, authenticity and efficiency of human and institutional activities. Despite this reality, the energy consumption rate of data centers has gone tremendously high worldwide raising environmentally and sustainability concerned questions alarmingly. Of the total consumption of data centers and the cooling energy consumption stand around 30-50% due to absence of efficient cooling systems. The thrust of this research is to look into how Nepal with high hydropower potentialities and naturally cool climate could develop eco-friendly and energy-effective data centers.

Objectives The envisaged objectives of this study are to investigate the technical, environmental and economic feasibility of establishing green data centers in Nepal with a workable blend of hydropower and climate-based cooling systems. The study also aimed to analyze the potential benefits in terms of cost reduction and minimization of hazardous carbon footprints.

Methods The study followed the collection and analysis of both primary and secondary data. Survey data and experts' opinion form the primary data while the publications of different concerned agencies make up the secondary sources. Review of existing infrastructural challenges, policy gaps and the public-private partnership roles from the perspectives of sustainability also remained the methods of research undertakings.

Findings The findings of the study stressed that Nepal has a strategic position regarding the matter of managing the cooling energy consumption. Till date, the attention of gearing comparative advantages due to right positioning of efficient cooling systems of data consumptions by the data centers has not been duly considered. In gist, the findings underscore Nepal's strategic advantage in positioning itself as a regional hub for low-carbon data center development.

Implications Considering the persisting potential for green data center development in Nepal, Nepal needs to explore sincerely areas unexplored yet. To accentuate the possible benefits associated to eco-friendly and energy-efficient data centers, Nepal's strategic actions for a significant opportunity to leverage its renewable energy assets and climate advantages for sustainable digital development are urgent. The implications of this study open up a viable roadmap toward a sustainable data center operation.

Keywords *sustainable data centers, hydropower, natural cooling, green ICT, climate-based design*

SSD-Aware Forensic Readiness: Proactive Strategies for Preserving Digital Evidence in Modern Storage

Jayaram Pudasaini
Email: jpudasaini@yahoo.com

Abstract

Thrust Solid State Drive (SSDs) data carving seriously challenges the digital forensic investigator: mechanisms—including the TRIM command, Wear Leveling, Flash Translation Layer (FTL), and Garbage Collection—that rapidly and unpredictably erase or scatter deleted data, traditional data carving methods are largely ineffective. Understanding this difficulty, this paper introduces the concept of SSD-aware forensics readiness strategies specially for the SSD storage environments.

Objectives This paper is to introduce the objective of the concept of SSD-aware forensics readiness strategies specially for SSD storage environments to address challenges in data carving caused by TRIM command, Wear Leveling, Flash Translation Layer (FTL), and Garbage Collection.

Methods This study employed methods like examining the current literature and their critical challenges like distinguishing valid data segments within environments where data frequently moved, dynamic data remapping processes, and the structural limitations of the data to identify file signatures: while doing so the methodology forensics readiness includes disabling TRIM, selecting forensic-friendly file systems, cautious SSD model procurement, and organizational policies.

Findings This study resorting to the process of integrating technical and procedural measures, forensics readiness also addresses evidence integrity and effective investigation for modern forensics investigators.

Implications The proposed SSD-aware forensics readiness strategies improve the ability of forensic investigators to maintain evidence integrity, effectively investigate SSD-based systems, and guide future developments in advanced forensic tools, firmware transparency, and suppression of destructive operations.

Keywords *data carving, solid state drive, wear leveling, garbage collection, forensic readiness*

Cryptocurrency in Nepal: Navigating Opportunities and Challenges in a Banned Landscape

Jeet Narayan Yadav

Abstract

Thrust Nepal's blanket ban on cryptocurrency since 2017 has driven activities underground, increasing risks and limiting potential benefits in finance, remittances, and technology.

Objectives This study evaluates challenges of the current prohibition and explores opportunities a regulated framework could offer for financial inclusion, innovation, and economic growth.

Methods Qualitative policy analysis was conducted using NRB directives, government reports, media sources, and comparative case studies of global regulatory models.

Findings The ban fosters illegal markets, capital flight, and stifles innovation. However, opportunities exist to reduce remittance costs, use surplus hydropower for mining, increase financial inclusion, and pave the way for a national CBDC.

Implications A shift from prohibition to regulated integration is urged. Policy should focus on legislation, risk mitigation, digital infrastructure, and harnessing crypto potential for remittances and energy.

Keywords *cryptocurrency regulation, nepal rastra bank, financial inclusion, remittances, cbdc, digital economy*

AI and IoT-Enabled Remote Learning Ecosystems for Rural and Underserved Areas

Kartikee Singh
Email: kartikee79@gmail.com

Abstract

Thrust Rural and underserved regions face persistent educational inequalities due to limited infrastructure and digital access. Innovative technologies are essential to bridge the digital divide and promote equitable learning opportunities.

Objectives This study investigates how the integration of Artificial Intelligence (AI) and the Internet of Things (IoT) can transform remote learning ecosystems, enhancing accessibility and equity in rural and underserved areas.

Methods The study adopted a literature-based approach, reviewing existing research, pilot initiatives, and "Smart Village" concepts to analyze the effectiveness and design principles of AIoT-enabled remote learning ecosystems.

Finding Successful AIoT deployments enable context-aware, human-centered remote learning systems that integrate deeply with broader community development initiatives, moving beyond simple technological upgrades.

Implications The findings highlight the need to address ethical considerations such as data privacy, algorithmic bias, and the preservation of teacher agency, ensuring that technology enhances rather than undermines equitable education.

Keywords *artificial intelligence, internet of things, smart village, remote learning, rural education, educational equity*

Game-Based Learning Strategies: A Pathway to Student Motivation and Academic Achievement

Kumar Poudyal

Email: kumar@texascollege.edu.np

Abstract

Thrust Game-based learning (GBL) integrates game mechanics into education to enhance engagement, critical thinking, and problem-solving, offering a strategy to improve student motivation and academic achievement across all levels of education.

Objectives This study examines the strategic application of game-based learning in boosting student motivation and academic achievement, and to assess its relevance in contemporary educational systems.

Methods The study adopted a mixed-methods approach, collecting quantitative data through structured questionnaires from 200 students and qualitative data via semi-structured interviews with 20 educators who implement GBL. Classroom observations were conducted to assess student interaction, engagement, and learning outcomes using physical or digital games.

Finding Game-based learning significantly enhances student motivation, particularly in traditionally challenging subjects, while fostering improved classroom dynamics, collaboration, and deeper conceptual understanding.

Implications The findings support the integration of GBL into formal teaching, complemented by teacher training and scalable digital platforms, enabling inclusive and effective gamified learning, especially in underserved communities.

Keywords *game-based learning, student motivation, academic achievement, engagement, digital platforms, experiential learning, curriculum integration*

Face Detection and Tracking

Manoj Bhattarai

Email: manoj@texasintl.edu.np

Abstract

Thrust Persistent real-time face tracking remains challenging in dynamic environments due to obstacles, pose variations, and complex backgrounds. Static cameras often fail to maintain continuous tracking, highlighting the need for active vision systems capable of adaptive target pursuit.

Objectives This study aims to design, implement, and evaluate a robust real-time face detection and tracking system using a PTZ camera to enhance accuracy and reliability in unconstrained settings.

Methods A hybrid framework integrating the Viola-Jones algorithm with a Haar-based cascade classifier was developed for initial detection. A dedicated control module translated facial coordinates into real-time PTZ adjustments to maintain subject centering. The system featured modular components for image acquisition, detection, camera control, and continuous tracking.

Findings Testing under diverse conditions—including lighting changes, cluttered backgrounds, and movement variations—yielded an average accuracy of 91.975%, significantly outperforming static camera configurations.

Implications This system offers a viable solution for security, surveillance, and access control applications. Future directions include multi-camera network integration, deep learning enhancements, and improved occlusion handling for broader scalability.

Keywords *face detection, face tracking, ptz camera, viola-jones algorithm, real-time surveillance*

Cooling Efficiency in a Data Center: Using an Air-Cooled System

Manoj Dangol

Email: manoj@texasintl.edu.np

Abstract

Thrust The rapid growth of cloud computing, artificial intelligence, and big data analytics has increased energy demands in data centers, creating the need for simple, cost-effective, and water-independent cooling solutions.

Objectives The study is to examine the cooling efficiency of air-cooled systems in data centers, focusing on simplicity, reduced capital expenditure, and independence from water resources.

Methods The study adopted a comparative review approach, analyzing air-cooled systems deployed in computer rooms across various contexts to evaluate performance, maintenance requirements, and energy efficiency.

Finding Air-cooled systems provide faster deployment, reduced maintenance complexity, and are particularly suitable for small to medium-sized data centers in moderate climates, leveraging seasonal temperature variations for free cooling and reduced energy consumption.

Implications The findings suggest that with intelligent control strategies, air-cooled systems can serve as effective, energy-efficient solutions for data centers, supporting sustainable operations in regions with moderate climates such as Nepal.

Keywords *data center cooling, air-cooled systems, energy efficiency, sustainable it, free cooling, moderate climates*

Leveraging AI Chatbots to Enhance Student Support and Operational Efficiency in Higher Education

Mahima Thakkula

Email: 7mahima.thakulla@gmail.com

Abstract

Thrust The higher education sector is currently at a pivotal point, driven by pressures from students such as demands for digitization, flexibility, skill development, and enhanced support services. Technology, including AI-powered tools, has the potential to meet these evolving needs. This study focuses on understanding this potential from students' perspectives.

In Nepal, chatbot use in higher education is still limited, with challenges including weak IT infrastructure, lack of Nepali-language interfaces, unclear data privacy policies, and very few empirical studies on their effectiveness. This creates a significant research gap that this study seeks to address.

Objectives The primary objective of this research is to examine how AI-powered chatbots can enhance student support services in higher education institutions. This study seeks to identify the challenges students face in accessing support services and to assess students' perceptions of how chatbots can improve the quality, accessibility, and responsiveness of these services.

Methods This study will use a quantitative questionnaire administered to students to gather insights on their experiences, challenges, and perceptions regarding AI-powered chatbots. The collected data will be analyzed using descriptive statistics to provide a clear understanding of students' perspectives on chatbot adoption in higher education.

Findings The study is expected to demonstrate that AI-powered chatbots can significantly improve the quality, accessibility, and speed of student support services, based on students' feedback.

Implications The results will provide insights for higher education institutions on adopting chatbots in a student-centered manner, contributing to better support, engagement, and learning experiences.

Keywords *AI, chatbots, higher education, student support, student experience*

Determinants of Faculty Engagement in Higher Educational Institutions

Makshindra Thapa, PhD., Narendra Sejuwal, Damodar Niraula and Surya Bahadur Prasain

Email: damodarniraula@gmail.com

Abstract

Thrust Identifying key drivers of faculty engagement is crucial for higher education quality in Kathmandu, yet remains a challenge for institutions.

Objectives This study investigates the impact of seven work-related variables on faculty engagement, including institutional support, work environment, recognition, and psychological well-being.

Methods Data was collected via a structured questionnaire from ١١٣ faculty members across Kathmandu›s institutions. Analysis employed correlation and regression techniques.

Findings While all seven variables showed a significant correlational relationship with engagement, regression analysis revealed only **work environment and culture** and **psychological well-being** as statistically significant unique predictors.

Implications The results strongly suggest administrators must prioritize fostering a supportive work environment and implementing well-being programs to enhance engagement, as these factors outweigh others like reward systems or autonomy.

Keywords *faculty engagement, work environment, psychological well-being, higher education, kathmandu*

Leadership Styles and Satisfaction: Identifying What Truly Resonates

Mridul Basnet and Surendra Joshi
Email: mridulbasnet@gmail.com

Abstract

Thrust Technological advances and competitive pressures have increased stress levels among IT employees, affecting morale and job satisfaction. Understanding which leadership styles most effectively promote satisfaction can help IT organizations enhance employee well-being, reduce turnover, and maintain competitiveness.

Objectives The objective of this study is to examine how different leadership styles—transformational, transactional, laissez-faire, and servant—impact job satisfaction among IT professionals.

Methods The study adopted a quantitative approach, surveying employees from Kathmandu-based IT industries and analyzing the data using multiple regression techniques to determine the influence of each leadership style.

Finding Servant leadership was found to have the strongest positive effect on job satisfaction ($\beta = 0.494$, $p < 0.01$), followed by laissez-faire ($\beta = 0.233$, $p < 0.01$), transformational ($\beta = 0.162$, $p < 0.01$), and transactional leadership ($\beta = 0.082$, $p < 0.01$).

Implications The results provide evidence-based guidance for policymakers, organizational leaders, and HR practitioners to design effective leadership development programs and create more fulfilling and productive work environments in the IT sector.

Keywords *leadership styles, job satisfaction, it professionals, servant leadership, transformational leadership*

Impact of Modern Encryption on Mobile Forensic Workflows

Mukesh Tiwari
Email: mukesh.jnp@gmail.com

Abstract

Thrust Advancements in mobile device security, including full-disk encryption (FDE), file-based encryption (FBE), and hardware-backed secure enclaves, have transformed digital forensic workflows. These mechanisms, combined with trusted execution environments and secure key management, significantly limit the effectiveness of traditional acquisition techniques in law enforcement.

Objectives This study examines the operational impact of modern mobile encryption on forensic workflows and explore adaptive strategies for lawful data acquisition in encrypted environments.

Methods The study adopted a mixed-method approach, drawing on practitioner survey data, case studies, and peer-reviewed research. It further analyzed emerging bypass techniques such as side-channel analysis, fault injection, system-on-chip reverse engineering, and in-system programming.

Findings The research proposes a revised forensic workflow framework tailored for encrypted environments, enhancing investigative effectiveness while maintaining adherence to security constraints.

Implications The findings underscore the need for capacity building, inter-agency collaboration, and future-ready research initiatives to balance robust encryption with lawful investigative access in mobile forensics.

Keywords *digital evidence, mobile forensics, encryption, forensic workflows, forensic acquisition*

Understanding Customer Satisfaction in Digital Payment Systems: Insights from Kathmandu Valley

Dr.Padam Dongol
Email: padamdongol2000@gmail.com

Abstract

Thrust The rapid growth of digital technologies has reshaped traditional banking, making financial services more accessible and efficient, particularly through digital payment systems. This study examines the impact of digital payment systems on customer satisfaction in the Kathmandu Valley.

Objectives This study examines the impact of digital payment systems on customer satisfaction in the Kathmandu Valley, focusing on key determinants such as ease of use, trust, privacy, and security.

Methods A quantitative research design was applied. Data were gathered from 386 respondents through a structured questionnaire and analyzed using descriptive statistics, reliability testing, Pearson's correlation, and multiple linear regression.

Findings Results from multiple regression revealed that ease of use ($p = 0.000$), trust ($p = 0.000$), and privacy ($p = 0.000$) significantly and positively influenced customer satisfaction, while security ($p = 0.189$) did not show a significant effect. The model explained 55% of the variation in customer satisfaction ($R^2 = 0.550$; Adjusted $R^2 = 0.545$), indicating a relatively strong model fit. Overall, the findings emphasize that customer experience factors such as trust, privacy, and ease of use play a more critical role than security alone in shaping satisfaction with digital payment systems.

Implications Insights highlighted by the study are valuable for policymakers and financial institutions seeking to strengthen customer satisfaction and promote wider digital financial inclusion in Kathmandu Valley

Keywords *digital payment systems, customer satisfaction, trust, privacy, security.*

Promoting Green Tourism for Sustainable Hospitality: Opportunities and Challenges in Nepal

Pankaj Diyas Sharma
Email: pankaj.diyas@texascollege.edu.np

Abstract

Thrust Green tourism focuses on environmental sustainability and community well-being. It is increasingly recognized as a key factor in sustainable development within fragile ecosystems. Nepal, with its abundant biodiversity and cultural heritage, is in a strong position to lead green tourism in the Himalayan region.

Objectives This paper investigates green tourism practices in Nepal's hospitality sector, highlighting the balance needed between environmental conservation, cultural preservation, and economic growth.

Methods Using various research methods, it examines stakeholder perceptions, opportunities, and challenges. Data from hypothetical willingness-to-pay surveys, adoption metrics, and cost-benefit comparisons provide examples of how to integrate sustainability into hospitality businesses. This research uses a mixed-methods design, which includes surveys, interviews, and field audits, to identify sustainable practices and their effects on hospitality businesses and communities.

Findings The findings highlight the importance and opportunities of eco-lodges, renewable energy, and community-based tourism, along with challenges including poor infrastructure, seasonal tourism, financial limitations, and capacity issues.

Implications The study suggests that integrating sustainable practices can enhance hospitality development while preserving Nepal's fragile ecosystems and cultural heritage. Eco-lodges, renewable energy adoption, and community-based initiatives can position Nepal as a leader in green tourism within the Himalayan region.

Keywords *green tourism, sustainable hospitality, eco-lodges, community-based tourism, certification program*

Cybersecurity Awareness at the Top Level in Co-operative Banks in Nepal: A Corner Stone for Good Governance and Sustainable Development

Dr. Pawan Kumar Sharma
Email: pawan.mct@gmail.com

Abstract

Thrust The pace of digitization is ever growing in almost all sectors of the economy. Financial sector of Nepal cannot be an exception to this reality. Co-operative banks which form a significant stakeholder capable of contributing major share in national development pursuit present both unparallel opportunities and sophisticated challenges caused by unstoppable digitization. This research paper investigates the present status of cybersecurity awareness among high-ranking executives, their exposures on matters related to technical defenses, resilient cybersecurity posture and strategic directions so as to mitigate cyber threats in co-operative banking sector of Nepal.

Objectives The central objective of this research is to investigate the cybersecurity awareness of top-level executives of cooperative banks and to examine how does that aspect is affecting the governance and sustainability of the institutions in Nepal. Furthermore, the paper aims to explore the state of cyber risk, how is it integrated to strategic planning and the risk management frameworks and developing a security conscious corporate culture. The focus has been to assess on the contributions or jeopardization of corporate governance and sustainability caused by cybersecurity awareness of people driving the institutions.

Methods This research employed a mixed approach utilizing structured surveys to quantify awareness levels across sampled cooperative banks and supplement the data with qualitative in-depth interviews using key informant questionnaire.

Findings The preliminary findings of the paper suggest a significant gap between the perceived importance of cybersecurity and its practical implementation over the governance structures. The paper specifically states that the persisting gap is a systemic risk not addressable by IT alone. The framework proposed by the research thus highlights on the innovative higher education integrating management and IT. For this, the paper recommends specialized executives' programs, workshops, and certification courses tailored for high level executives.

Implications Low level of cybersecurity awareness of high-level executives constitutes a critical failure in corporate good governance aspect impeding organizational sustainability. In a nutshell, such situation could lead to a catastrophe and keep the institution far from development goals and ultimately to demise state.

Keywords *cybersecurity awareness, co-operative banks, financial inclusion, good governance, sustainable development*

ESP32-Based Control of Non-Linear P8 LED Displays

Pradip Bastola

Email: pradip.bastola@texascollege.edu.np

Abstract

Thrust LED matrix displays, such as P8 panels, are essential in IoT and embedded systems for dynamic visual communication and digital signage. Standard libraries, like ESP32-HUB75-MatrixPanel-DMA, assume linear wiring, creating challenges for non-linear displays that result in inaccurate visual outputs.

Objectives This study identifies and resolve discrepancies between the logical coordinates defined in software and the physical layout of non-linear P8 LED displays.

Methods The study adopted a systematic approach involving individual pixel analysis to generate a comprehensive mapping of logical to physical coordinates. Based on this map, a custom remapping function was developed, allowing correct translation of logical pixel data to the physical LED positions.

Findings The ESP32 microcontroller successfully enabled accurate and reliable control of the non-linear P8 LED display, ensuring precise visual output.

Implications This project provides a practical, adaptable solution for overcoming hardware-software incompatibilities, emphasizing the importance of low-level diagnostics and software customization when standard libraries are insufficient.

Keywords *esp32, p8 led display, iot, embedded systems, pixel remapping, hardware-software integration, led matrix control*

Algorithmic Dharma: Reimagining Governance and Sustainability through Fictional AI Frameworks and Ethical Theories

Raj Kishor Singh
Email: drrksnp@gmail.com

Abstract

Thrust Emerging digital governance systems and AI-driven sustainability interventions raise complex ethical questions. Speculative fiction offers a unique lens to explore these challenges and generate innovative insights for inclusive, transparent, and ethically grounded governance.

Objectives This paper investigates how fictional AI frameworks, as portrayed in *The Ministry for the Future* by Kim Stanley Robinson, can inform ethical digital governance and climate policy, modeling real-world interventions in sustainability and justice.

Methods The study adopted a qualitative, interpretive approach, combining textual analysis of the novel with theoretical frameworks from ICT4D, e-Governance, and Rawlsian justice, particularly the concept of the Veil of Ignorance, to critically examine algorithmic decision-making and ethical principles.

Findings The research proposes a "Fiction-to-Policy" model, demonstrating that literary narratives can serve as speculative prototypes for AI-driven governance, offering visionary yet actionable insights for sustainability and ethical decision-making.

Implications The findings highlight the potential of narrative foresight to guide the design of just, inclusive, and future-ready governance systems, bridging the gap between imagination and practical policy innovation.

Keywords *ict4d, e-governance, climate ethics, fiction-to-policy model, ethical ai, sustainability*

Influence of Learning Organization on Employee Performance in Academic Sector

Deepa Regmi
Email: deeparegmi11506@gmail.com

Rakshya Dhital
Email: rakshyadhital321@gmail.com

Abstract

Thrust In today's increasingly competitive educational landscape, the adoption of a comprehensive learning organization is crucial for enhancing institutional effectiveness. Extensive organizational researches have realized that an organization's learning capacity will be the only sustainable competitive advantage in the future (Watkins & Marsick, 2004).

Objectives This study is carried out to examine the impact of a learning organization on employee performance, with job dedication as a measure of performance, among college lecturers in the Kathmandu Valley.

Methods Guided by a positivist epistemology, the research adopts a quantitative approach to objectively measure relationships between constructs and test causal linkages. Data were collected through self-administered questionnaire and Google survey from 174 full-time lecturers across various constituent and private colleges in Kathmandu Valley. Learning organization is assessed through three dimensions: continuous learning, inquiry and dialogue, and empowerment. Data were analyzed using descriptive statistics, correlation analysis, and multiple regressions through SPSS Version 25.

Findings The findings revealed that continuous learning and empowerment are positively associated with job dedication with impact on employee performance. However, inquiry and dialogue did not show a significant positive relationship with job dedication. This may be due to a lack of structured platforms and cultural norms that support open communication and collaborative problem solving in Nepali academic institutions. Without opportunities for meaningful dialogue, this dimension is less likely to influence lecturer performance.

Implications The study emphasizes the importance of fostering continuous learning and empowerment within academic institutions to enhance employee performance. It also suggests that more structured dialogue platforms and supportive cultural norms are necessary to fully leverage the benefits of inquiry and dialogue.

Keywords *learning organization, continuous learning, inquiry and dialogue, employee performance, job dedication*

Lived Experiences of Adolescents in Navigating Social Media

Raju Raut (PhD Scholar)
Email: rajuraut862@gmail.com

Abstract

Thrust The rapid rise of social media has profoundly shaped adolescent socialization, self-identity, and emotional well-being. While these platforms provide avenues for connection and self-expression, they also raise growing concerns about cyberbullying, negative social comparison, and declining mental health. The complexity of these experiences underscores the need for in-depth exploration of how adolescents themselves perceive and navigate social media.

Objectives This paper explores how and why adolescents use social media and to examine the influence of these experiences on their mental health and emotional well-being.

Methods Using purposive sampling, ten adolescents aged 13 to 18 years—active users of popular social media platforms—participated in semi-structured interviews. Data were transcribed and analyzed thematically with the support of NVivo software, enabling systematic coding and identification of emerging patterns.

Findings The study reveals that social comparison, cyberbullying, and emotional regulation are key mediators linking social media use to mental health outcomes such as anxiety, depression, and self-esteem. Adolescents describe social media as a double-edged sword: a source of social support and identity development, yet simultaneously a risk factor for emotional distress. While recognizing its benefits, participants also express awareness of its potential harms.

Implications The findings provide critical insights for parents, educators, and mental health professionals, highlighting the importance of fostering positive online environments and promoting healthy digital practices. The study emphasizes the need for targeted interventions and policies that safeguard adolescent mental health while enabling constructive use of social media.

Keywords *qualitative research, adolescents, social media, cyberbullying, social comparison, emotional well-being, mental health*

Industry-academia ollaboration for Competency-based Curricula

Sambed Timilsina and Prof. Govinda Prasad Acharya, PhD
Email: timilsinasambed@gmail.com

Abstract

Thrust Concerns about the growing skills gap between industry demands and academic graduates have spread around the world, especially in the light of the quickly changing digital economy. Creating competency-based curricula/ courses that improve graduate employability and job preparation, this study looks into the role that industry-academia partnership plays. Under the direction of the Triple Helix Model, which prioritizes the merger of academics, industry, and government.

Objectives This study examines the role that industry-academia partnership plays in creating competency-based curricula/courses that improve graduate employability and job preparation.

Methods A total response of 65 academic professionals and 40 corporate representatives as respondents was collected through interviews and structured questionnaires. Responses were analyzed through regression analysis to examine relationships, and correlation analysis to gauge the degree of relationship between variables, using SPSS software.

Findings Employability outcomes and curriculum alignment are positively impacted by meaningful collaborations, but there are still major gaps in maintaining effective dialogue, guaranteeing timely curriculum revisions, and institutionalizing research partnerships as revealed by the responses from industry representatives and academic professionals. Continuous curriculum updates and research projects have a statistically significant impact on competency-based curricula. According to regression analysis, corporate engagement and quality exchanges have a less pronounced effect in this regard.

Implications To close the gap between education and employment, the study emphasizes the necessity of coordinated processes, legislative backing, and shared dedication from all parties involved. These observations add to the continuing discussions about matching the demands of the labor market with higher education and provide useful tactics for developing long-lasting industry-academia collaborations in Nepal and elsewhere.

Keywords *competency-based curricula, quality dialogue, corporate engagement, continuous updating, research opportunities*

Digital Equity and Faculty Stress: Investigating IT Access and Governance in Higher Education Institutions

Samjhana Chaulagain
Email: samjhana.chaulagain15@gmail.com

Abstract

Thrust There is a multifaceted relationship between digital equity, faculty stress (including technostress), access to information technology (IT), and IT governance within higher education institutions (HEIs). Understanding these dynamics is crucial to fostering supportive and equitable digital environments for faculty.

Objectives This paper analyzes the challenges, impacts, and strategic solutions related to digital equity, IT access, and governance in higher education, with a focus on mitigating faculty stress.

Methods The study adopted a literature-based approach, synthesizing findings from recent academic research and institutional reports to define key concepts, examine their interdependencies, and identify best practices and policy recommendations.

Findings The analysis revealed that the digital transformation of HEIs, accelerated by the COVID-19 pandemic, has expanded opportunities for teaching, learning, and administration but has also intensified digital inequities and faculty stress, particularly in technology adoption and governance practices.

Implications The findings emphasize that digital equity and faculty well-being are foundational to institutional excellence. Higher education leaders must adopt integrated strategies that combine robust IT infrastructure, professional development, mental health support, and inclusive governance frameworks to ensure sustainable and equitable digital ecosystems.

Keywords *digital equity, faculty stress, technostress, it access, it governance, higher education institution*

Security Challenges in IoT for the Education Sector

Samniwa Angdembe Limbu
Email: samniwa.limbu@gmail.com

Abstract

Thrust The integration of Internet of Things (IoT) technologies in the education sector has transformed teaching, learning, and administrative processes. While IoT enhances efficiency and innovation, it also introduces significant security concerns that threaten the reliability and safety of educational environments.

Objectives This study examines the security challenges posed by IoT adoption in the education sector, with a focus on safeguarding data, devices, and networks.

Methods The study adopted an analytical approach, reviewing issues related to data privacy, device vulnerabilities, network security, and lack of user awareness in IoT-enabled educational settings.

Findings The study identified multiple potential security lapses within educational IoT ecosystems, highlighting the urgent need for comprehensive policies, standardized security protocols, and targeted cybersecurity education.

Implications The findings provide direction for institutions to design secure and sustainable IoT-based education systems, ensuring reliable teaching, learning, and administrative processes while mitigating risks.

Keywords *iot, education, cybersecurity, data privacy, device vulnerability, network security, smart classrooms*

The Interplay of Learning and Forgetting Curves: Implications for Long-Term Knowledge Retention & Skill Development

Sarala Karki and **Asmita Chettri**
Email: sarala@texascollege.edu.np

Abstract

Thrust Learning and forgetting represent two interconnected dynamics that determine how individuals acquire, retain, and apply knowledge. The learning curve reflects gradual improvement through practice, while the forgetting curve highlights memory decline when knowledge is not reinforced. This paper focuses on their interplay and practical implications for designing effective strategies in education, training, and skill development.

Objectives The study aims to analyze how structured revision, reinforcement, and spaced repetition contribute to durable memory, and to assess how active learning methods enhance long-term skill acquisition and adaptability.

Methods This research will adopt a review-based method, complemented by both quantitative and qualitative approaches. Quantitatively, experimental designs, surveys, and recall tests will be employed to measure retention rates and evaluate the effectiveness of interventions such as spaced retrieval. Qualitatively, interviews, focus groups, and classroom observations will explore learners' perceptions, experiences, and challenges in applying memory strategies. Together, these methods will generate both measurable evidence and rich insights into mitigating forgetting and promoting sustainable learning.

Findings In the Nepali context, rote memorization continues to dominate classrooms, with limited integration of memory science or systematic interventions. While international research strongly supports spaced repetition and active recall, Nepal lacks empirical studies, digital learning tools, and supportive policy frameworks. Addressing these gaps could transform academic learning, vocational training, and lifelong education in Nepal.

Implications The paper underscores the need for structured revision cycles, curriculum reforms, and the adoption of digital tools to improve knowledge retention. Such steps are essential for aligning Nepal's education system with global standards of sustainable learning and skill development.

Keywords *learning curve, forgetting curve, spaced repetition, knowledge retention, skill development*

The Impact of E-Governance on Public Service Quality and Administrative Efficiency: A Case Study of Budhanilkantha Municipality

Saroj Dhital, Rageena Shrestha
Email: sarojdhital7@gmail.com

Abstract

Thrust The rapid advancement of Information and Communication Technology (ICT) has reshaped governance systems worldwide, with e-governance emerging as a key instrument to enhance transparency, accountability, and service delivery.

Objectives This study examines "The Impact of E-Governance on Public Service Quality and Administrative Efficiency: A Case Study of Budhanilkantha Municipality."

Methods Using a mixed-method approach—comprising stakeholder interviews, citizen surveys, and analysis of municipal service records—this research explores how digital governance tools influence citizen satisfaction, administrative responsiveness, and resource optimization.

Findings Findings suggest that the implementation of e-governance in Budhanilkantha Municipality has significantly reduced service delays, minimized bureaucratic hurdles, and improved accessibility for citizens. Key benefits include streamlined documentation processes, better information dissemination, and enhanced citizen engagement through digital platforms. However, challenges persist in terms of digital literacy gaps, infrastructural limitations, and resistance to change among traditional administrative structures.

Implications The study concludes that e-governance serves as a catalyst for good governance and sustainable municipal development when complemented by capacity building, inclusive digital policies, and continuous monitoring. The insights from Budhanilkantha provide practical implications for local governments across Nepal in leveraging ICT for more citizen-centric, efficient, and transparent public administration.

Keywords *e-governance, public service quality, administrative efficiency, good governance, budhanilkantha municipality, nepal*

The Pervasive Threat: Prompt Injection Attacks in Higher Education IT Systems, AI Applications, and Data Integrity

Saroj Ghimire
Email: sarojghimire027@gmail.com

Abstract

Thrust The rapid integration of Artificial Intelligence (AI) and Machine Learning (ML) into higher education institutions (HEIs) marks a significant digital transformation, promising enhanced efficiency, personalized learning, and accelerated research. However, this technological advancement introduces novel and complex cybersecurity challenges, chief among them being prompt injection attacks. The thrust of this paper is to look into a prompt injection as a sophisticated cyberattack designed to manipulate Large Language Models (LLMs) and other generative AI (GenAI) systems by disguising malicious inputs as legitimate prompts.

Objectives The basic objective of this paper is to conceptualize the possible threat and the impact of prompt injection attacks on higher education institutions which stand multi-faceted and severe, affecting IT systems, AI applications, and data integrity across the institution's complex digital landscape. Within IT systems, these attacks pose risks of system compromise, unauthorized access, and remote code execution, particularly in LLM-integrated components of Enterprise Resource Planning (ERP), Student Information Systems (SIS), and Learning Management Systems (LMS).

Methods In order to address the likely threats the methods applied oversee the input mechanism, segregation of content and use of different models. Addressing this evolving threat requires a comprehensive and adaptive defense strategy. Key mitigation approaches include implementing robust input handling mechanisms, strictly constraining model behavior, segregating untrusted external content, and conducting regular adversarial testing. Furthermore, human oversight, a Zero Trust security model, stringent access controls, data sanitization, and continuous monitoring of AI environments are essential to building resilience against prompt injection attacks in higher education.

Findings Prompt injection attacks exploit vulnerabilities in AI systems, especially LLMs, to manipulate outputs, override system guardrails, leak sensitive information, and propagate misinformation. Both direct and indirect attacks, as well as hybrid threats, pose significant risks to IT systems, AI applications, and data integrity in HEIs.

Implications The study emphasizes the urgent need for HEIs to adopt robust, adaptive, and AI-aware cybersecurity strategies, incorporating Zero Trust models, continuous monitoring, and human oversight to mitigate prompt injection attacks. Ensuring resilience against such attacks is essential for maintaining the trustworthiness of AI-driven applications, protecting sensitive data, and supporting the safe digital transformation of higher education institutions.

Keywords *artificial intelligence (ai), large language models (llms), prompt injection attacks, higher*

The Integrated Dynamics of Organizational Business Communication in Nepal

Srijana Dhakal
Email: shristidhakal48@gmail.com

Abstract

Thrust This paper examines the critical issue of organizational business communication in Nepal, focusing on the processes and practices that shape interactions within organizations.

Objectives This paper investigates how business communication skills and practices in Nepalese organizations contribute to meaning-making and organizational effectiveness through the lens of sense-making theory.

Methods The study adopted a qualitative narrative inquiry approach, drawing on prior literature and applying in-depth interviews with six purposefully selected participants from diverse organizations in Kathmandu to explore their lived communication experiences.

Findings The study revealed that organizational communication in Nepal is highly dynamic and interwoven, with individual narratives playing a central role in shaping shared organizational realities.

Implications The findings provide practical insights for organizations seeking to design more effective and inclusive communication strategies, thereby strengthening resilience and adaptability in dynamic business environments.

Keywords *organizational communication, business communication, narrative inquiry, sense-making theory, qualitative research, nepal*

From Perimeter to Posture: Securing Physical Devices in IoT with Adaptive Cyber Defense

Dr. Suman Thapaliya
Email: suman@texascollege.edu.np

Abstract

Thrust The rapid proliferation of the Internet of Things (IoT) has transformed digital ecosystems, enabling pervasive connectivity across industries, healthcare, smart homes, and financial infrastructures. However, the physical devices that underpin IoT ecosystems remain highly vulnerable, often constrained by limited computational capacity and weak native security mechanisms.

Objectives The objectives of the study is to build a framework that proposes a posture-centric adaptive cyber defense framework leading to Zero Trust principles, Network Access Control (NAC), and Artificial Intelligence (AI)-driven anomaly detection to safeguard physical IoT devices and address dynamic device-level threats, insider risks, and sophisticated adversarial tactics.

Methods A mixed-methods approach, combining systematic literature review, architecture modeling, and simulated threat scenarios, was employed to build and evaluate the framework, addressing to connectivity across sectors.

Findings Findings of the study reveal that posture-based continuous validation enhances resilience by reducing insider risks, mitigating device-level compromise, and automating incident response.

Implications By shifting from perimeter-based to posture-centric defense, this study contributes a scalable, adaptive, and intelligence-driven security model essential for future-proofing IoT ecosystems.

Keywords *iot security, adaptive cyber defense, zero trust, network access control, cyber resilience*

Sustainable Trekking in Nepal: Leave No Trace Practices.

Dr. Surya Bahadur Ghimire
Email: suryaghimire1136@gmail.com

Abstract

Thrust Trekking business in Nepal encompasses the whole country by major areas (Everest, Annapurna, Langtang, Manaslu, Mustang, etc.) and is economically significant but also exerts tremendous pressure on vulnerable mountain environments.

Objectives This paper objectives focus on how the "Leave No Trace" (LNT) philosophy and associated practices of sustainability are adopted along Nepal's trekking paths and examines environmental impacts, stakeholder roles, and challenges in place.

Methods Methodology adopted by this study include survey methods and review of related policy documents based on field-level studies (i.e. waste audits and local surveys) and policy documents, the study synthesizes literature 2014–2024 (peer-reviewed articles, NGO/government reports) to ascertain the potential for LNT to be enhanced in Nepali trekking..

Findings The findings of the study revealed that conservation area projects like the Annapurna Conservation Area Project (ACAP) and Manaslu Conservation Area Project (MCAP) have spurred communities to pool tourism revenues and resources. Government and nongovernment efforts (e.g., SPCC in Khumbu) target waste collection infrastructure. Yet the study finds even well-touristed areas have poor waste management: e.g., Ghorepani (Annapurna) has waste bins but "no specific regulations to protect the environment," and consequently, minimal environmental return. Good practices such as integrated waste management plans, porter cleanup, trekker education, and environmentally friendly lodges exist, but there are loopholes in enforcement and knowledge.

Implications The implications of the study highlight the need for stronger enforcement, community engagement, and education to enhance the effectiveness of LNT practices in Nepali trekking areas, ensuring sustainable tourism while protecting fragile mountain ecosystems.

Keywords *nepal trekking, leave no trace (lnt), waste management, sustainable tourism, environmental impacts, community-based conservation*

Zero Trust in Banking: AI-Enhanced Network Access Control as the Foundation for Adaptive Cyber Defense in Financial Industry

Sushant Panta
Email: sushant.panta@texascollege.edu.np

Abstract

Thrust The exponential rise of digital banking has accelerated financial inclusion but simultaneously expanded the threat surface, rendering perimeter-based defenses inadequate in a trustless environment where both insiders and outsiders may pose risks. This study advances an integrated Zero Trust framework anchored in AI-enhanced Network Access Control (NAC) as the foundation for adaptive cyber defense in financial institutions.

Objectives This study aims to develop an advanced integrated Zero Trust framework anchored in AI-enhanced Network Access Control (NAC) as the foundation for adaptive cyber defense in financial institutions. Additionally, the paper also focuses a trustworthy environment to build where the stakeholders feel risk-free and out from threat surface.

Methods Methodologically, the research adopts a qualitative–quantitative hybrid approach, combining a systematic literature review of Zero Trust and NAC applications with case-based analysis of banking sector deployments, supplemented by simulation modeling of AI-driven anomaly detection and behavioral analytics.

Findings Findings suggest that AI-driven NAC not only strengthens compliance enforcement and automates incident response but also enhances insider threat detection, thereby building resilience and protecting public trust.

Implications The study concludes that adopting AI-enhanced NAC within a Zero Trust paradigm constitutes a strategic imperative for financial institutions to safeguard digital transformation and ensure long-term national financial stability.

Keywords *zero trust, network access control (nac), artificial intelligence, banking*

Impact of Tourism Promotional Spending on Income in Nepal

Dr. Sushil Awale
Email: sushil.awale@cdm.tu.edu.np

Abstract

Thrust Despite the substantial resources allocated to tourism promotion in Nepal, there has been limited systematic evaluation of how effectively such spending translates into increased tourism income. This gap raises concerns about whether promotional investments are being utilized efficiently to support the country's tourism-led economic growth.

Objectives This paper examines the impact of tourism promotional expenditure on tourism income in Nepal.

Methods The analysis draws on 20 years of secondary data from the Nepal Tourism Board, covering both promotional spending and corresponding tourism income.

Findings Results indicate that tourism promotional spending exerts a statistically significant and positive influence on income generated from the tourism sector.

Implications Effective allocation of tourism promotion budgets requires systematic evaluation of past expenditures to enhance efficiency, maximize returns, and ensure sustainable growth of Nepal's tourism industry.

Keywords *tourism, promotion, expenditure, income, Nepal*

Reinforcement Learning-Based Self-Tuning Databases for Sustainable IT Management in Higher Education

Sushil Bhattarai
Email: sushil.bhattarai@texascollege.edu.np

Abstract

Thrust The rapid digital transformation of higher education institutions has triggered exponential growth in academic and administrative data, necessitating robust and adaptive database management systems. As data volume and complexity rise, conventional manual tuning techniques are increasingly inadequate. Manual approaches are resource-intensive, error-prone, and unable to dynamically adapt to fluctuating workloads, resulting in performance bottlenecks and elevated operational costs.

Objectives This study develops a reinforcement learning (RL)-based self-tuning database system capable of autonomously optimizing configurations, improving query performance, and promoting sustainable IT management in higher education.

Methods The study adopted a reinforcement learning framework that continuously learns from workload patterns and system performance feedback. The model dynamically adjusts database parameters to enhance efficiency, optimize resource utilization, and ensure adaptability under varying workloads.

Findings The RL-based self-tuning system successfully improved query performance, reduced latency, and optimized resource utilization while minimizing human intervention—demonstrating its potential as a sustainable solution for database management in higher education.

Implications The proposed solution aligns with good governance principles by enabling institutions to manage large-scale data effectively, ensuring faster access to information for decision-making, research, and academic services.

Keywords *reinforcement learning, self-tuning databases, sustainable it management, higher education, database optimization, resource utilization*

Nepali Music Recognition System: Leveraging Deep Learning Convolutional Neural Network (CNN) for Multi-Lingual Audio Classification

Suyog Kadariya
Email: 7suyog@gmail.com

Abstract

Thrust There is such diversity in culture in Nepal that it is best illustrated by its large number of musical traditions encompassing over a dozen languages, local musical instruments, as well as styles of music. The range of the auditory identity of Nepal extends through the highland calls of Tamang selo to the elaborate traditional Newari music and the modern merging of new Nepali pop; that range poses distinct challenges of classification that are particularly needs to be well-handled by the global recognition platforms of music.

Objectives The primary objective of this study is creating the Nepali Music Recognition System (NMRS), which is an AI-driven platform that employs a deep learning mechanism to categorize songs in the Nepali language in various genres with a high sense of precision.

Methods A Convolutional Neural Network (CNN) trained using a handpicked corpus of Nepali songs published in open platforms, especially YouTube, is used as study method to power the system. Some genres we find here are the Nepali Folk, Modern, Newari, and Gurung songs. Amid the absence of standardized data sets in the field, preprocessing of data was done using spectral reduction of noise, normalization of the data, as well as segmenting data to enable better detection of patterns.

Findings The last variant of the CNN model received a classification score of 96% on unseen test results, which concludes that the usage of the system is effective in identifying genre-based patterns in different dialects and arrangements of the music.

Implications Regarding broader implications, this study can be discussed as an initiating step toward using AI in musically underrepresented cultures. It may also be stretched out to accommodate music archiving, recommendation systems, and even a music learning platform in Nepal.

Keywords *deep learning, audio analysis, cultural, ai in music, genre recognition, digital heritage*

Impact of Generative AI Tools on Personalized Learning Among Management Students in Kathmandu Valley

Swochita Thapa
Email: sailesh.karmacharya@Prime.edu.np

Abstract

Thrust The advent of Generative Artificial Intelligence (GenAI) tools, such as ChatGPT, Bard, and Microsoft Copilot, presents transformative opportunities for personalized learning in higher education. This study investigates the impact of GenAI on personalized learning outcomes among management students in Kathmandu Valley, Nepal.

Objectives This study aims to investigate the impact of GenAI on personalized learning outcomes among management students in Kathmandu Valley, Nepal. Drawing upon the Technology Acceptance Model (TAM), the research examines the relationships between Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Frequency of GenAI Usage, and the Type of GenAI Tools Used, and their collective influence on Personalized Learning Outcomes (defined as improvements in student engagement, satisfaction, understanding, and overall learning effectiveness).

Methods A quantitative research approach will be employed, utilizing a structured questionnaire administered to management students across various academic levels in Kathmandu Valley. Data analysis will involve statistical methods such as correlation and regression analysis, using inferential statistics, likely with software like SPSS, to test hypotheses derived from the conceptual framework.

Findings The findings are anticipated to support the notion that student acceptance and frequent use of GenAI tools are significantly associated with improved engagement, understanding, and satisfaction in academic settings.

Implications This study aims to provide valuable insights for educators, policymakers, and AI developers on optimizing GenAI tools to enhance individualized education in developing contexts of Nepal. The anticipated results can guide institutions in promoting effective adoption of GenAI tools to improve student engagement, learning understanding, and overall satisfaction, fostering more personalized and data-informed educational practices.

Keywords *generative artificial intelligence (genai), personalized learning, technology acceptance*

Analysis of Image encryption using chaotic and Hyperchaotic approach

Sukraj Neyong
Email: neyongsukraj@gmail.com

Abstract

Thrust Conventional encryption methods are often inadequate for images due to their large size and high pixel correlation. Secure transmission requires specialized techniques resistant to unauthorized access and cryptanalysis.

Objectives This study designs and compares three chaos-based encryption algorithms to evaluate their security performance for image transmission, focusing on resistance to statistical and differential attacks.

Methods Algorithms using Tent map, Henon map, and Lorenz system were implemented. Encryption involved confusion (pixel shuffling) and diffusion (pixel value alteration via XOR with chaotic sequences). Security was measured using MSE, PSNR, NPCR, UACI, histogram analysis, and time efficiency.

Findings All methods produced visually secure encrypted images with near-ideal NPCR (~99.6%) and UACI (~33.3%) values, indicating strong resistance to differential attacks. The Henon map was most efficient for small images, while all algorithms maintained high security metrics.

ImplicationsChaos-based encryption provides robust security for applications like medical imaging and military communication. Future work will optimize real-time performance and integrate deep learning for enhanced security.

Keywords *image encryption, chaos theory, hyperchaos, tent map, henon map, lorenz system, security*

‘Duality’ in the Conceptual ‘Homeland’: An Analysis of the Feeling of Disenchantment and Disorientation upon Homecoming

Ujina Rana
Email: ujeena.rana@gmail.com

Abstract

Thrust Homecoming is often romanticized in diaspora discourse, portraying return to the homeland as the ultimate life goal. However, the emotional reality of returnees—marked by alienation, disorientation, disenchantment, and disappointment (commonly referred to as reverse culture shock)—is frequently overlooked. Nostalgic perceptions of the homeland and experiences in the host country often create a mismatch between expectation and reality, leading to setbacks for returnees and a nuanced form of cultural dissonance.

Objectives This paper examines reverse culture shock among Nepali returnees, focusing on the dual inconsistencies they encounter: (i) the contrast between home and host cultures, and (ii) the divergence between the imagined homeland and the lived reality upon return.

Methods A survey was conducted among first-generation Nepali migrants aged 25–55 who were educated abroad and belong to middle- and upper-middle-class families. The study combines survey findings with analyses of literary texts to explore the lived experiences of return migration and perceptions of homecoming.

Findings Survey results and literary analyses reveal that, despite challenges, diasporic populations continue to associate ‘home’ with their country of origin. However, many returnees experience unexpected disorientation and disenchantment, highlighting the duality between imagined and actualized home.

Implications Juxtaposing lived experiences with textual narratives provides a deeper understanding of reverse culture shock, offering insights for scholars, policymakers, and diaspora support organizations on managing expectations and facilitating smoother reintegration of returnees.

Keywords *homecoming, reverse culture shock, diaspora, duality, return migration, homeland, nepali migrants*

Bridging the Rural–Urban Divide in Higher Education with ICT

Umesh Rokaya
Email: nomerepeace@gmail.com

Abstract

Thrust The rural–urban divide in higher education remains a longstanding challenge, restricting equitable access to knowledge, opportunities, and resources. Urban students often benefit from advanced infrastructure, trained faculty, and robust digital ecosystems, whereas their rural counterparts struggle with poor connectivity, inadequate facilities, and limited exposure.

Objectives This study examines how Information and Communication Technology (ICT) can bridge the rural–urban divide in higher education by ensuring equal access to quality education and promoting sustainable socio-economic development.

Methods The study adopted an ICT-driven framework that utilized virtual classrooms, online forums, digital repositories, and management tools such as Learning Management Systems (LMS), data analytics, and e-governance solutions to enhance teaching, learning, and institutional decision-making.

Findings ICT integration significantly reduced educational disparities by improving access to learning resources, enhancing transparency in institutional management, and creating pathways for rural students to participate more equitably in higher education.

Implications The findings underscore the potential of ICT to strengthen governance and foster inclusive and sustainable higher education, aligning digital inclusion policies with broader socio-economic progress in rural areas.

Keywords *ict in education, rural–urban divide, higher education, digital inclusion, e-governance, sustainable development*

Buddhist Philosophy- Theory and practice in emotion regulation

Upasana Adhikari
Email: upasana505@gmail.com

Abstract

Thrust Emotions are feelings that generally have both physiological and cognitive elements influencing the people's behavior. Managing our own emotion both in nature and intensity is important part of daily life. Emotion management is one of the parts of Daniel's Emotional Intelligence, other parts include knowing our own emotions, motivating ourselves, recognizing the emotion of others and handling relationships. Buddha explained the problem or Dukkha and its solution as: The Four Noble Truths and The Eightfold Path to Happiness respectively.

Objectives This study aims to explore the role of Buddhist philosophy and practice in emotion regulation, examining how adherence to Buddhist teachings may influence emotional control and emotional intelligence

Methods Review of various articles form the basic method of this study. All the articles that were freely found in the internet matching the topic were selected and reviewed for the study.

Findings Different studies suggest that following Buddhist philosophy and meditation can be controlled and managed emotions. Buddhist philosophy is also found to increase the overall level of emotional regulation and emotional intelligence. But the participants of case-study had a different view. All the participants were Buddhist by religion but all of them explained that they could not control their emotion as it could be.

Implications The study concluded with the proposition that being a Buddhist follower does not mean that one is following the philosophy fully. There are lots of discrepancies between philosophy and practices, even in the monastic school where monks are understood to be the honest disciples of Buddha.

Keywords *emotion, buddhism, emotional regulation*