Maharaja Surajmal Institute of Technology, New Delhi-110058

Department of Computer Science and Engineering

Seminar Report on Intelligence in Action: Exploring the Role of Data Structures, Machine Learning, and Business Strategy in the AI Era

Institute Name and Address	College of Business Administration, Central Michigan University, 1200 S Franklin St, Mount Pleasant, MI 48859, United States.
Name of the Expert	• Sanjay Kumar, Ph.D., Associate Dean and Professor of Management at College of Business Administration • Dr. Aparna Lhila, Associate Professor at the Economics department and director of CBA's MBA program
Date and Time	21-03-2025, 10:00 AM - 12:00 PM
Target Audience	CSE 2nd Year
Organized by	CIC Cell, CSE department
Attended Participants	102

Introduction

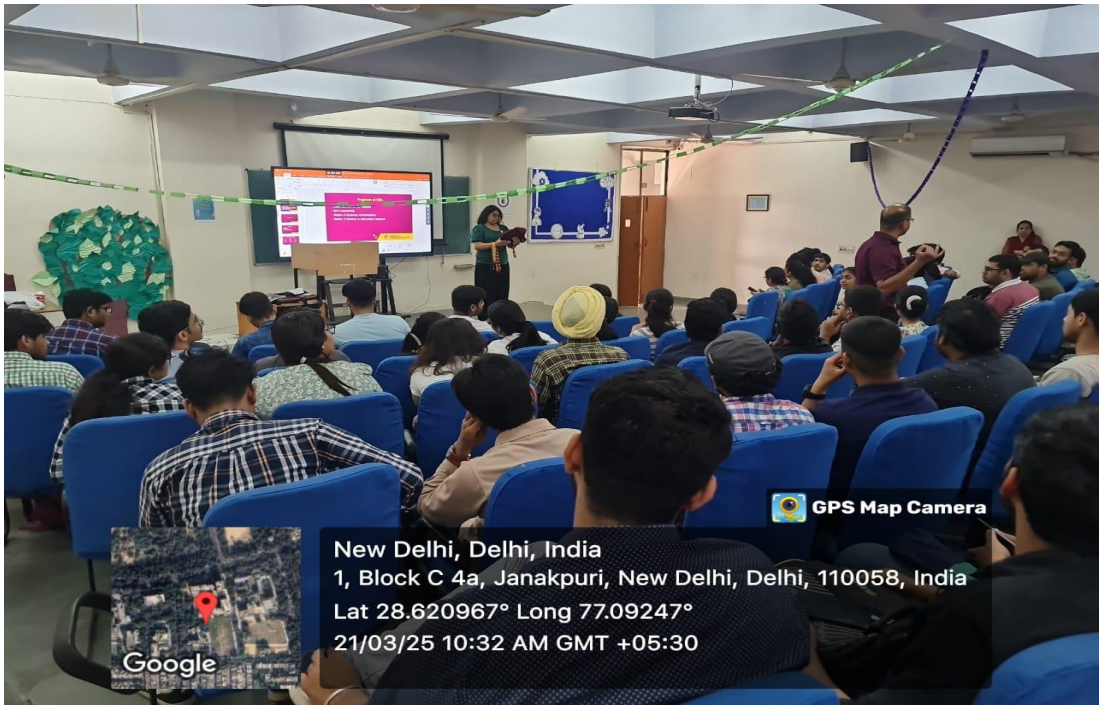
On 21th March 2025, the students of Maharaja Surajmal Institute of Technology (MSIT) had the privilege of attending the seminar conducted by the College of Business Administration (CBA), the business-related academic unit of Central Michigan University (CMU) on the topic "Intelligence in Action: Exploring the Role of Data Structures, Machine Learning, and Business Strategy in the AI Era". The session was led by Dr. Sanjay Kumar, Associate Dean and Professor of Management, and Dr. Aparna Lhila, Associate Economics Professor and Director of the college's MBA program, who provided valuable insights into Role of Data Structures, Machine Learning, and Business Strategy in the AI Era

About College of Business Administration

The College of Business Administration (CBA) at Central Michigan University (CMU) offers a comprehensive and dynamic business education designed to prepare students for successful careers in a rapidly evolving global economy. With a focus on hands-on, transformational learning experiences, the CBA emphasizes ethical leadership, innovation, and a commitment to fostering a culture of belonging.

CBA also holds accreditation from the Association to Advance Collegiate Schools of Business (AACSB) International, a distinction achieved by only 5% of business schools worldwide. Notably, it is among the select institutions accredited in both accounting and business.

The CBA is housed in Grawn Hall, the oldest building on CMU's campus, which has been modernized to include state-of-the-art classrooms, collaborative spaces, and technology-equipped study areas to foster an innovative learning environment.



About the Experts

Dr. Sanjay Kumar serves as the Associate Dean and Professor of Management at the CBA. His career is marked by significant contributions to curriculum development, program management, faculty recruitment and development, and fostering international collaborations. Dr. Kumar has also been actively involved in shared governance, including serving as Vice Chair of the Faculty Senate.

Dr. Aparna Lhila is the Director of the Master of Business Administration (MBA) Program and an Associate Professor of Economics at Central Michigan University (CMU). Her academic focus is in health economics, particularly examining health investment decisions and health-related behaviors within the household production framework. Her research often explores factors influencing the health of pregnant women and their newborns.

The objective of the Visit

The seminar aims to summarize a cross-disciplinary faculty discussion to bring together perspectives from the **Departments of Computer Science** and **Business Administration**. The central theme of the dialogue was the growing integration of **technical expertise (DSA & ML)** and **business intelligence** in the evolving landscape of Artificial Intelligence (AI). Faculty emphasized the importance of equipping future professionals with hybrid skill sets that blend algorithmic thinking, data-driven strategies, and responsible leadership.

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2. Role of Data Structures & Algorithms (DSA)

- **Foundation for All Intelligent Systems**: DSA remains crucial for building efficient and scalable AI systems, including those used in business applications such as customer relationship management (CRM), enterprise resource planning (ERP), and supply chain optimization.
- **Operational Efficiency**: Algorithms play a vital role in logistics, inventory management, recommendation systems, and financial modeling by enabling faster data processing and smarter automation.
- **Interpreting Business Data**: Business analytics tools often rely on underlying data structures to store, retrieve, and manipulate vast amounts of structured and unstructured data.

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3. Machine Learning (ML) in Business Administration

- **Predictive and Prescriptive Analytics**: ML models are transforming how businesses predict customer behavior, optimize marketing strategies, detect fraud, and forecast demand.

- **Automation and Intelligence**: Intelligent systems powered by ML automate customer service (e.g., chatbots), streamline reporting, and enhance decision-making through real-time analytics.
- **Personalization and Strategic Advantage**: ML enables hyper-personalized customer experiences and dynamic pricing strategies that help businesses remain competitive.

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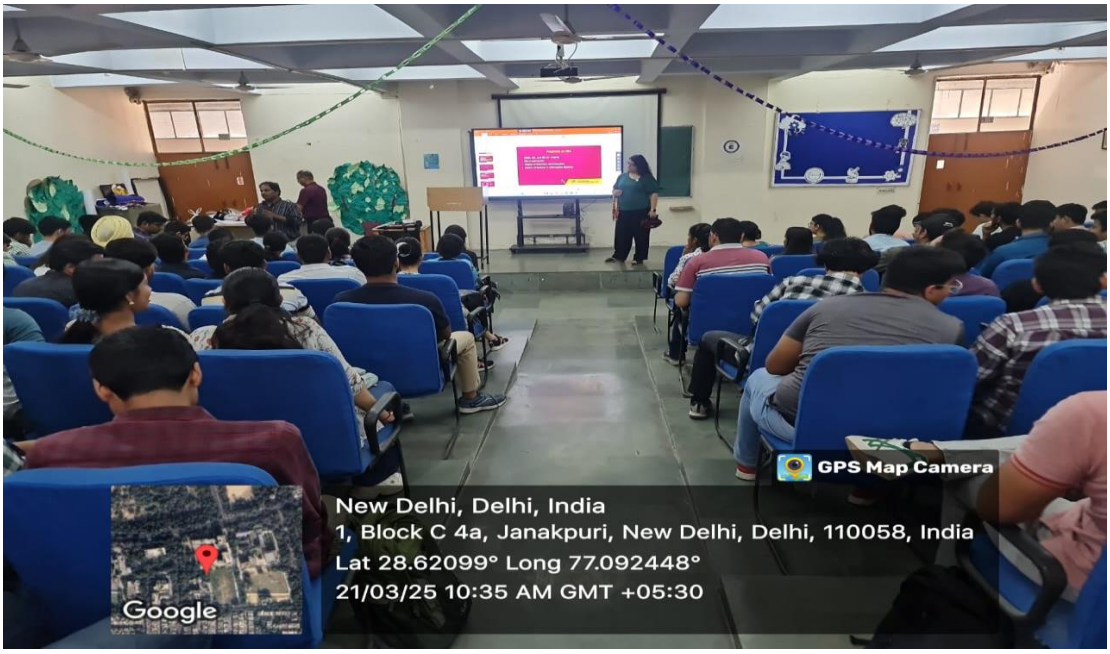
4. The Interplay between Technical and Business Disciplines

- **Need for Cross-Functional Literacy**: Faculty emphasized that business leaders of the future must understand how ML models work, how data structures affect system performance, and how to communicate effectively with technical teams.
- **Hybrid Professionals**: There's rising demand for business professionals who can think algorithmically and data scientists who understand business objectives.
- **Curriculum Innovation**: Central Michigan University is working towards integrating basic programming, algorithm design, and AI ethics into business education, while also encouraging computer science students to understand market applications and user behavior.



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5. Real-World Applications Discussed

- **Retail**: ML-enhanced recommendation engines, optimized supply chains through algorithmic planning.
- **Finance**: Algorithmic trading, credit scoring, real-time fraud detection using supervised learning.

- **Healthcare Management**: ML-powered diagnostics, hospital resource optimization, and predictive scheduling.
- **Marketing & CRM**: Customer segmentation using clustering algorithms, churn prediction, and sentiment analysis.

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6. Future Trends and Recommendations

- **Ethical and Responsible AI**: The business impact of AI must be balanced with ethical considerations, fairness, and transparency.
- **AI for Strategic Decision-Making**: Businesses are increasingly using ML not just for operations, but also to support high-level decisions based on real-time data.
- **Encourage Interdisciplinary Collaboration**: Project-based learning, case studies, and joint research between CS and Business students were recommended to bridge the gap between theory and application.

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7. Conclusion

The discussion with faculty of Central Michigan University highlighted a critical shift: the future of business administration is increasingly rooted in technical understanding. DSA and ML are no longer confined to IT departments—they are becoming central to strategy, innovation, and competitive advantage. Preparing students to thrive in this AI-powered world means fostering a deep understanding of both technological foundations and business insight.

Organized By

Dr. Amita Yadav, Dr. Kavita, Dr. Sapna Malik, Dr. Sangeeta, Dr. Meedhavi Malik

Dr. Geetika Dhand

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Dr. Nishtha Jatana

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