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PREFACE

SAPIENTIA DTU – AUGUST2026 is a monthly bulletin that showcases the intellectual contributions and research achievements of the faculty members, researchers, and scholars of Delhi Technological University (DTU). This edition presents a curated collection of recently published research papers from diverse disciplines, highlighting the University's commitment to academic excellence, innovation, and impactful research.

The bulletin has been designed to provide readers with a concise overview of scholarly publications through thematic categorization and subject-wise presentation. By making research outputs more accessible, SAPIENTIA DTU aims to encourage interdisciplinary collaboration, promote knowledge dissemination, and strengthen the culture of research and innovation within the university community.

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We hope this publication serves as a valuable resource for students, faculty members, researchers, and all those interested in the academic contributions of Delhi Technological University.

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1.	A 15T single-bitline Schmitt-trigger based SRAM cell incorporating radiation hardening and half-select disturbance immunity View Paper	Jain, S., Pandey, N.	AEU International Journal of Electronics and Communications, 217, art. no. 156549.
2.	A Data-Driven AI Framework for Monitoring Lithium-Ion Battery Health Using Secondary Operational Data Open Access View Paper	Bisht, V.S., Kushwaha, N., Sundriyal, N., (...), Salas-Peña, O., Barrios, J.A.	Vehicles, 8(7), art. no. 150.
3.	A Hybrid Model of Grey Wolf and Whale Optimization for Software Defect Prediction View Paper	Malhotra, R., Raj, A.	Lecture Notes in Networks and Systems, 2039 LNNS, pp. 352-362.
4.	A novel compact 4-port MIMO antenna with dual-mode polarization for 5G sub-6 GHz applications View Paper	Kumar, R., De, A., Jain, P.	Journal of Electromagnetic Waves and Applications.
5.	A Novel Hybrid Fungal Growth Optimization -ANN Based MPPT with Improved LMS Adaptive Control for Grid Connected Solar PV Systems View Paper	Rai, P., Singh, A., Garg, R.	Journal of Electrical Engineering and Technology.

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6.	A Novel Synthesis of Tryptanthrin and Its Congeners Using a DBU-Based Ionic Liquid View Paper	Chaudhary, A., Srivastava, R.	Organic Preparations and Procedures International.
7.	A Robust Deep Learning Framework for Software Defect Prediction Using Transformer Architecture, SMOTE-ENN Resampling, and SHAP based Interpretability View Paper	Malhotra, R., Kumar, H.	Lecture Notes in Networks and Systems, 2039 LNNS, pp. 363-372.
8.	A Robust Federated Learning Approach for Software Defect Prediction Under Class Imbalance View Paper	Malhotra, R., Raj, A.	Lecture Notes in Networks and Systems, 2020 LNNS, pp. 68-82.
9.	A simple and facile regioselective aliphatic fluorination of acetophenone derivatives View Paper	Prakash, C., Singh, R.	Journal of the Iranian Chemical Society, 23(8), art. no. 263.
10.	A Study of Fractional Order SIS Model with Fear Effect and Beddington-De Angelis Incidence Rate View Paper	Srivastava, A., Nilam	Boletim Da Sociedade Paranaense De Matematica, 44(7).

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11.	A Survey on Agentic AI: Applications, Challenges and Evaluation Frameworks View Paper	Kalia, N., Singh, P.	Lecture Notes in Networks and Systems, 2021 LNNS, pp. 375-387.
12.	A tunable framework for quantum states from combinatorial graphs and graph-theoretic entanglement detection View Paper	Kumar, R., Adhikari, S.	Annals of Physics, 494, art. no. 170681.
13.	A wavelet attention fusion and YOLO based approach for robust multi scale hand pose estimation Open Access View Paper	Sharma, B., Panda, J.	Scientific Reports, 16(1), art. no. 23445.
14.	Adaptive Multi-Switching Chaos Synchronization of Lotka-Volterra Model to Replicate Complete and Anti-Behavior of Hindmarsh-Rose Neuron Model View Paper	Khattar, D., Deo, N., Sirohi, M.	Boletim Da Sociedade Paranaense De Matematica, 44(7).
15.	An Adaptive Hybrid Quantum-Inspired Optimization Approach for Advanced VSG Control Strategy in Inverter-Based Microgrid View Paper	Kumar, D., Rai, J.N., Nagarajan, S.T.	Journal of Electrical Engineering and Technology.

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16.	An Efficient Machine Learning-Based Approach for Fault Sensor Node Detection in WSNs View Paper	Gupta, A., Ranga, V.	Lecture Notes in Networks and Systems, 1893 LNNS, pp. 334-344.
17.	Applying a proteogenomic approach for improving genome annotation in Leishmania panamensis using high-resolution mass spectrometry data Open Access View Paper	Chowdhury, S., Pawar, S., Kumar, P., (...), Jamdhade, M., Pawar, H.	Acta Tropica, 281, p. 108267.
18.	Approximation of Linear Positive Fuzzy Operators View Paper	Kanita, Deo, N.	Boletim Da Sociedade Paranaense De Matematica, 44(7).
19.	Autoencoder Based Optimal Recommender System for Movielens Data View Paper	Beniwal, N., Verma, O.P.	Lecture Notes in Networks and Systems, 2037 LNNS, pp. 192-209.
20.	Awareness-based innovation adoption modelling inculcating the concept of dynamic market size: a new insight View Paper	Kumar, H., Aggrawal, D., Anand, A., Singh, O.	Journal of Management Analytics.

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21.	Blockchain as a service for enhancing security in education: Application, challenges and case studies View Paper	Mittal, A., Jha, R., Sharma, J., Mehra, P.S.	Computers and Electrical Engineering, 139, art. no. 111432.
22.	Bond graph modeling and sensitivity analysis of a hydraulic system: Impact of impeller material variations View Paper	Saxena, A., Rani, S.	Flow Measurement and Instrumentation, 112, art. no. 103514.
23.	Cascade, cavitation, and mixed regime dynamics in Alfvén ion–acoustic turbulence: A Zakharov approach with applications to the upper solar atmosphere View Paper	Patel, G., Ritu, Uma, R., Sharma, R.P.	Physics of Plasmas, 33(8), art. no. 082106.
24.	Clean energy from algae: Tracing the sustainable biodiesel pathway through environmental impact, energy demand, and uncertainty assessment View Paper	Patel, K., Singh, S.K.	Renewable Energy, 274, art. no. 126212.
25.	Comparative Analysis of Machine Learning Models for Sports Pose-Based Human Activity Recognition View Paper	Yadav, A., Sharma, A.	Lecture Notes in Networks and Systems, 2019 LNNS, pp. 540-551.

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26.	Computational Analysis of Novel Inhibitors of NMDA Receptor View Paper	Sonia, Kumar, P.	Proceeding 2026 IEEE 6th International Conference on Computing Power and Communication Technologies Ic2pct 2026, pp. 1199-1203.
27.	Conditional Diffusion Framework for Hybrid Image Synthesis: Towards Photorealistic and Geometry Aware Generation View Paper	Verma, K., Aggarwal, K., Singh, P., Goel, A.	Proceedings of 9th International Conference on Computing Methodologies and Communication Iccmc 2026, pp. 1163-1168.
28.	Controllability Analysis and Controller Design of Time-Multiplexed Multiport Fault-Tolerant DC–DC Converter View Paper	Masoom, Md.M., Kumar, M., Kumar, N.	IEEE Transactions on Industrial Electronics.
29.	Corrigendum: Graphene Nano-Engineered Plasma-Tailored Dielectric Interfaced (GNPTD) Field-Effect Transistor for Ultrasensitive Detection of Breast Cancer Biomarkers [ECS J. Solid State Sci. Technol., 15, 053007(2026)] Open Access View Paper	Yadav, P., Rewari, S., Sharma, S.C.	Ecs Journal of Solid State Science and Technology, 15(8), art. no. 089002.
30.	Design and fabrication of single layer crescent hook metamaterial with ENZ and NZI characteristics View Paper	Ankit, Anu, Bhawna, (...), Kishor, K., Sinha, R.K.	Applied Physics A Materials Science and Processing, 132(9), art. no. 834.

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31.	Design of high-performance energy-efficient radiation-hardened sense amplifier for low-voltage applications View Paper	Kumar, C.I., Pillai, R., Upadhyaya, S., (...), Anand, A., Jatin, B.	Sadhana Academy Proceedings in Engineering Sciences, 51(3), art. no. 194.
32.	Electronically tunable inverse low pass filter View Paper	Lakra, S., Sehgal, S., Singh, S., Pandey, N.	Aip Conference Proceedings, 3284(1), art. no. 040012.
33.	Emotion-Driven Digital Firestorms: The Role of Moral Triggers and Influencer Alignment in Cancel Culture Crises View Paper	Maheshwari, N., Harshita, H., Tuli, D., Chaudhary, H., Mangla, G.	Journal of Contingencies and Crisis Management, 34(3), art. no. e70211.
34.	Enabling Data-Driven Governance through Collective Analytics: Challenges and Framework for Indian E-Governance Open Access View Paper	Maurya, A.P., Suri, P.K.	International Journal of Information Engineering and Electronic Business, 18(4), pp. 1-15.
35.	Enhancement of the Engineering Properties of the Black Cotton Soil by Reinforcement with Jute and Polypropylene Fibres: A Site-Specific Study from Morena District, Madhya Pradesh View Paper	Dhiman, D., Ralli, R., Sarkar, R., Chatterjee, S., Jayalekshmi, S.	Proceedings of the National Academy of Sciences India Section A Physical Sciences.

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36.	Enhancing quantum classification with custom feature maps in variational quantum classifiers View Paper	Verma, P., Vishwakarma, D.K.	Applied Soft Computing, 203, art. no. 116164.
37.	Evaluating the Integration of Industry 4.0 and Circular Economy Practices within the Manufacturing Sector View Paper	Sahu, A., Agrawal, S., Khandelwal, N.	Sustainable Energy Transition A Comprehensive Guide to Modelling and Optimizing Energy Systems, pp. 148-161.
38.	Examining Explicit and Implicit Caste Bias Among Healthcare Providers in India View Paper	Yadav, S., Ram, K.	Health Care Analysis.
39.	FedDRL-SDN: A federated deep reinforcement learning framework with software-defined networking for traffic signal control systems Open Access View Paper	Kumari, S., Ranga, V., Meena, J.	Ain Shams Engineering Journal, 17(10), art. no. 104383.
40.	Fostering frugal innovation through a stakeholder-centered design thinking framework Open Access View Paper	Kumari, A., Singh, R., Das, L.K.	Discover Sustainability, 7(1), art. no. 1102.

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41. **High-temperature thermal energy storage using eutectic and composite PCMs for solar applications: A review**

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Sharma, A.K., Sharma, P., Gupta, B., (...), Baredar, P., Shalwar, P.K.

Solar Energy Materials and Solar Cells, 307, art. no. 114610.

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42. **How do environmental technology and governance influence environmental degradation in Indo-Pacific countries?**

View Paper

Chopra, R., Rehman, M.A., Sofuoğlu, E.

Economics of Governance, 27(1), art. no. 43.

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43. **Hybrid energy sharing strategy of ultracapacitor assisted lithium-ion battery for electric vehicle**

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Singh, K., Singh, M., Valluru, S.K.

Energy Conversion and Management, 368, art. no. 121983.

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44. **Hydrodynamic assessment and design optimization of a novel three-bladed airfoil-based hydrokinetic savonius turbine**

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Singh, H., Singh, R.K.

Ocean Engineering, 365(P3), art. no. 127405.

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45. **Hypervisor-Based Cloud Intrusion Detection Based on Xception Stacked Autoencoder Network**

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Kumar, A.N.S., Kumar, Y.R., Raghava, N.S.

Next Materials, 12, art. no. 102104.

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46.	Improved THz detection using double-ring shaped 2D graphene on gold nanolayer with SiO2 substrate: A simulation study View Paper	Sharma, N., Verma, A., Kishor, K., Jain, V.K.	Physica E Low Dimensional Systems and Nanostructures, 184, art. no. 116624.
47.	Investigation of charge transport mechanisms and electrochemical performance of solid electrolyte-NZSP for solid state batteries View Paper	Kumar, P., Jadaun, S.S., Singh, S., Ratan, G., Panwar, A.K.	Materials Research Bulletin, 205, art. no. 114348.
48.	Light-Assisted Photocatalytic Degradation of Congo Red Using Biogenically Fabricated Nickel Oxide Nanoparticles Synthesized From Kalanchoe pinnata Leaf Extract View Paper	Yadav, P., Warkar, S.G., Kumar, A.	Chemistryselect, 11(30), art. no. e74091.
49.	Machine Learning Based Anomaly Detection on IoT Dataset CIC IoT-DIAD 2024 in IoT Environments View Paper	Shakeet, B., Ranga, V.	Lecture Notes in Networks and Systems, 1984 LNNS, pp. 395-404.
50.	Melamine Formaldehyde Fibers: A Comprehensive Review on Chemistry, Applications in Fire Fighting Suits, and Future Perspectives View Paper	Yashaswy, Roy, P.K., Srivastava, R.	Chemistryselect, 11(29), art. no. e74008.

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51. Mitigating half-select disturb in an 11T SRAM cell using a single bitline for high stability and low power consumption

Yadav, S., Singh, S., Kale, S.

Integration, 111, art. no. 102848.

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52. Monitoring Sulfate Attack in Various Reinforcement Bars Using the Electro-Mechanical Impedance Technique with Piezoelectric Sensors

Morwal, T., Pal, S., Dev, N.

Rilem Bookseries, 73, pp. 351-363.

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53. Multi objective optimization and thermodynamic performance assessment for sustainable drying in PVT solar dryer

Gupta, A., Purohit, A., Shukla, A., Das, B., Kumar, A.

Solar Energy, 317, art. no. 115016.

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54. Multi-Segmented Terahertz Metamaterial-Based Sensor for Biomolecule Detection

Kumari, P., Kumar, A.

Advanced Theory and Simulations, 9(8), art. no. e70517.

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55. Mustard stalk cellulose and carboxymethyl tamarind kernel gum-based green hydrogel for slow release of diammonium phosphate

Gayen, T.K., Warkar, S.G., Ali, M.A.

Journal of the Indian Chemical Society, 103(9), art. no. 102956.

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56.	Novel Adzuki and Mung Bean Flakes and Cookies: Nutritional Characterization and Anti-Obesity Potential View Paper	Sharma, R., Kumar, D., Gupta, R.K.	Chemistryselect, 11(29), art. no. e73955.
57.	NVIDIA Jetson Nano: An IoT based Autonomous Image and Video Stream Processing Tool View Paper	Patidar, S., Jindal, R., Kumar, N.	Aip Conference Proceedings, 3402(1), art. no. 050004.
58.	On Gabor frame networks Open Access View Paper	Touthang, J.	Results in Applied Mathematics, 31, art. no. 100746.
59.	Optimization of Acoustic Emission Timing Parameters for Geological Backfill Media Used for Landslide Prone Slope Monitoring View Paper	Kumar, D., Singh, S.K.	Indian Geotechnical Journal.
60.	Oxidative stress–driven dysregulation of the MMP-2/TIMP-2 axis in chronic obstructive pulmonary disease: Molecular mechanisms, genetic polymorphisms, and therapeutic implications View Paper	Sangwan, P., Sharma, J.G., Habib, M.A., Alam, M.I.	Respiratory Medicine, 262, art. no. 109084.

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61. Pareto-based optimization of thermohydraulic transport characteristics of AlN/DIW-MEG nanofluid in a rectangular microchannel heat sink
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— Sahu, A., Zunaid, M., Kumar, R. — International Journal of Thermal Sciences, 231, art. no. 111248.

62. Pharmacokinetics, molecular docking, and molecular dynamics simulation unveil novel lichen-derived scaffolds targeting PBP2a MRSA
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— Priya, A., Venkatesh, N., Rao, A., (...), Selva, G., Swami, S. — Frontiers in Bioinformatics, 6, art. no. 1820903.

63. Physical and Dielectric Properties of Polycrystalline $LaV_{0.5}Nb_{0.5}O_4$
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— Kumar, A., Sapra, S.K., Meena, R., (...), Dhaka, A., Dhaka, R.S. — Indian Journal of Pure and Applied Physics, 64(6), pp. 682-695.

64. Polysaccharide-Based Hydrogel Composites With Organic and Inorganic Fillers: Recent Advances in Reinforcement, Functional Properties, and Selected Applications
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— Yadav, P., Warkar, S.G., Kumar, A. — Chemsuschem, 19(15), art. no. e70937.

65. Predicting hydraulic conductivity in stratified porous media using Support Vector Machines: a comparative model analysis
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— Gupta, S.K., Srivastava, A.K. — Zeitschrift Der Deutschen Gesellschaft Fur Geowissenschaften, 177(1), pp. 87-95.

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66.	Predicting venture capital exit strategies through explainable machine learning: governance, decision intelligence and organisational implications View Paper	Malhotra, P.	International Journal of Organizational Analysis, pp. 1-22.
67.	Real-time flexibility aware electric vehicle charging scheduling for photovoltaic-integrated distribution networks using fuzzy control View Paper	Singh, A., Nangia, U., Rizwan, M.	Sustainable Energy Grids and Networks, 47, art. no. 102459.
68.	Recent trends on bearing faults diagnosis of IM using vibration signal: a critical review View Paper	Yadav, O.P., Joshi, D., Chauhan, R.K.	Sadhana Academy Proceedings in Engineering Sciences, 51(3), art. no. 187.
69.	Recommendation Systems: A Survey of Recent Advances and a Proposal for a Deep Reinforcement Federated Recommendation System View Paper	Chauhan, A., Sharma, A.	Lecture Notes in Networks and Systems, 2019 LNNS, pp. 443-454.
70.	Reinforcement Federated Learning With Clustering Expertise for Privacy-Aware Anomaly Detection View Paper	Choumal, A., Rizwan, M., Jha, S.	IEEE Transactions on Industry Applications.

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71. Review of Tesla turbines in organic Rankine and transcritical CO_2 cycles focusing on performance design and future prospects

Bhalla, M., Kumar, A.

Flow Measurement and Instrumentation, 112, art. no. 103490.

View Paper

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72. Segmentation-Based Word Spotting in Handwritten Ayurveda Manuscripts Using Siamese Convolutional Network

Agarwal, M., Indu, S., Jayanthi, N.

Springer Proceedings in Mathematics and Statistics, 520 PROMS, pp. 163-173.

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73. Self-Healing Sustainable Materials and Their Applications

Tyagi, A., Dvivedi, A., Pal, V.K., Chaudhary, V.

Self Healing Sustainable Materials and their Applications, pp. 1-126.

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74. Shrinkage behaviour and durability of recycled aggregate concrete incorporating thermo-mechanically treated coarse aggregates

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Badgujjar, L.R., Singh, A., Panghal, H., Kumar, A.

Engineering Research Express, 8(14), art. no. 145109.

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75. Stored Cross-Site Scripting to Session Hijacking: Demonstration and Defensive Analysis

Goyal, B., Kumar, M.

Lecture Notes in Networks and Systems, 2023 LNNS, pp. 52-63.

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76.	Synergistic Geroprotectors Mapping through Systems Machine Learning and Graph Neural Networks View Paper	Sharma, Y., Das, A.	Omics A Journal of Integrative Biology, 30(9), pp. 515-528.
77.	The Role of Generative AI in Advancing Disease Detection Through Medical Imaging: A Review View Paper	Jain, S., Arora, P., Dahiya, S.	Lecture Notes in Networks and Systems, 2039 LNNS, pp. 384-394.
78.	Triangulating trust: Delaunay-based geometric keys for sender authentication in CAN protocol View Paper	Singh, N., Agarwal, R.	Vehicular Communications, 61, art. no. 101069.
79.	Unlocking biomedical potential of eco-friendly polyhydroxyurethane hydrogel: controlled release of cefadroxil antibiotic View Paper	Singh, P., Kaur, R.	Journal of Biomaterials Science Polymer Edition.
80.	Use of Ensemble Learners to Predict Number of Defects in a Software View Paper	Malhotra, R., Rajpoot, A.	Lecture Notes in Networks and Systems, 2023 LNNS, pp. 227-238.

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81.	Sentiment Shift Across Domains: Evaluating Transformers vs. Traditional Models on Twitter Data View Paper	Pandey, N., Verma, B., Vishwakarma, D.K.	Proceedings of the 2025 3rd International Conference on Advances in Computation Communication and Information Technology Icaiccit 2025, pp. 279-284.
82.	Shape-Dependent Ultra-Broadband Terahertz Absorbing Graphene-Based Metamaterial Structure View Paper	Sharma, N., Kishor, K., Verma, A., (...), Pal, R., Jain, V.K.	Lecture Notes in Electrical Engineering, 1491 LNEE, pp. 57-65.
83.	Simulation-validated optimization of parallel tandem organic solar cells with ultrathin gold interconnecting layers for enhanced efficiency and scalability View Paper	Kant, N., Singh, P.	Organic Electronics, 154, art. no. 107423.
84.	Synergistic TiO_2-doped g-C_3N_4@PoPD nanohybrid: toward efficient biosensing of xanthine View Paper	Thakur, D., Pandey, C.M., Kumar, D.	Microchimica Acta, 193(6), art. no. 379.
85.	Tailoring thermal properties and structural integrity of n-Eicosane/Poly(Styrene-co-Butylacrylate) microcapsules with divinylbenzene cross-linker View Paper	Varshney, G., Kaur, R., Zulfequar, M.	Materials Chemistry and Physics, 359, art. no. 132549.

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86.	Terahertz Based D-shaped Photonic Crystal Fiber for Breast Cancer Detection View Paper	Mishra, G.P., Chaudhary, V., Singh, S., Chaudhary, V.S., Pravesh, R.	Lecture Notes in Electrical Engineering, 1484 LNEE, pp. 323-328.
87.	The Intelligent Drive: Exploring AI in Electric and Autonomous Mobility View Paper	Rathour, N., Patidar, S.	Lecture Notes in Networks and Systems, 1792 LNNS, pp. 365-381.
88.	Three-Phase Grid-Integrated SPV System with SRFT for Enhanced Power Quality View Paper	Mittal, N., Rai, J.N., Garg, R.	2026 3rd International Conference on Advancements and Key Challenges in Green Energy and Computing Akgec 2026.
89.	Toeplitz determinants of logarithmic coefficients for starlike and convex functions Open Access View Paper	Giri, S., Kumar, S.S.	Bulletin Des Sciences Mathematiques, 211, art. no. 103845.
90.	Topological Weyl phase driven anomalous transport in half-metallic Co2ScSb Heusler alloy Open Access View Paper	Kumar, K., Kumar, R., Singh, M., Kashyap, M.K.	Journal of Physics Condensed Matter, 38(18).

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91.	Towards explainable AI: multi-modal transformer for video-based image description generation Open Access View Paper	Agarwal, L., Verma, B.	Signal Image and Video Processing, 20(3), art. no. 141.
92.	TrafficMan: Bridging Vehicle Detection, Tracking, and RL for Intelligent Traffic Management View Paper	Gupta, M.P., Malhotra, P., Patidar, S.	Lecture Notes in Networks and Systems, 1792 LNNS, pp. 31-42.
93.	Translational advances of exosomes in neurodegeneration towards precision healthcare: From biomarkers to therapeutic frontiers Open Access View Paper	Sharma, R., Song, B.S., Rane, R., (...), Karan, A., Song, J.	Biomedicine and Pharmacotherapy, 199, art. no. 119297.
94.	Unveiling the adaptive structure-function synergy in thermophilic translation initiation factor 1: A molecular dynamics framework View Paper	Maity, A., Sengupta, A., Chatterjee, P., Rani, M., Kumar, A.	Biophysical Chemistry, 335, art. no. 107644.
95.	Unveiling the potential of thermally stable Dy3+doped sodium lanthanum titanate perovskite phosphors for solid state lighting applications View Paper	Anupam, Vishwakarma, A.K., Jayasimhadri, M.	Ceramics International.

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96.	Variation of Quasi-Ultrafine Particle Concentrations During Odd–Even Traffic Restrictions in Delhi View Paper	Yadav, S.K., Sharma, M., Rajagopal, K., (...), Mishra, R.K., Gurjar, B.R.	Clean Soil Air Water, 54(5), art. no. e70184.
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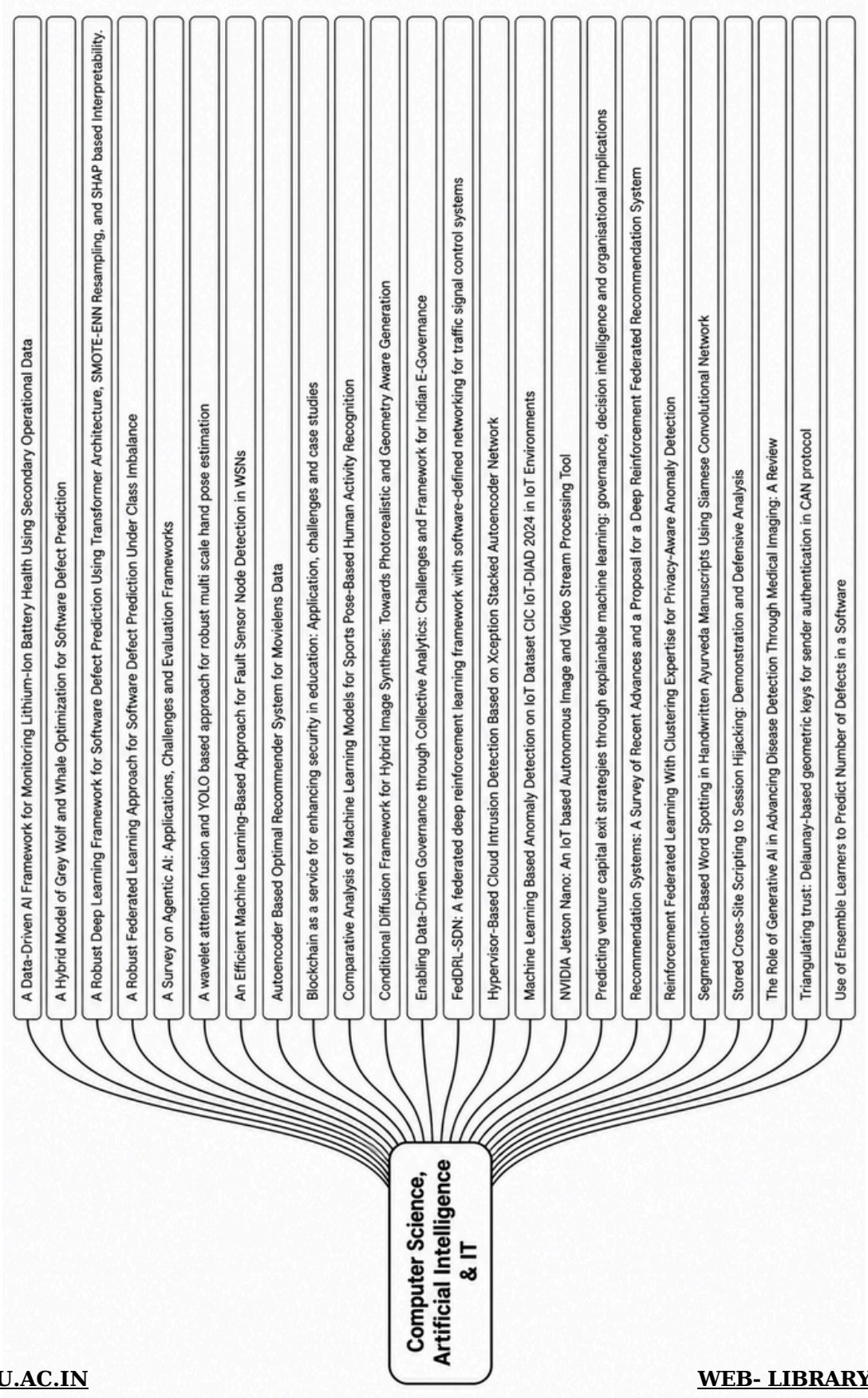
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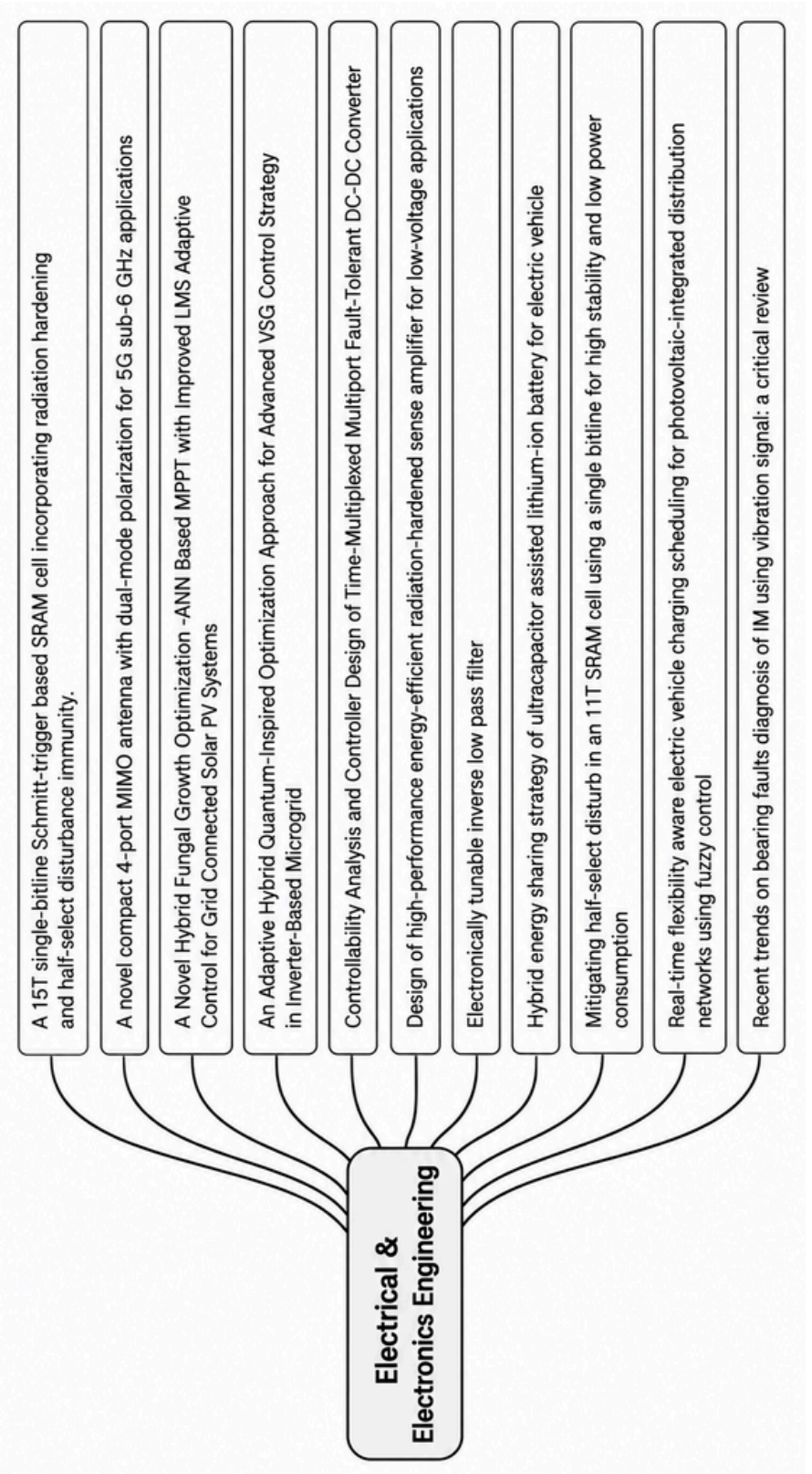
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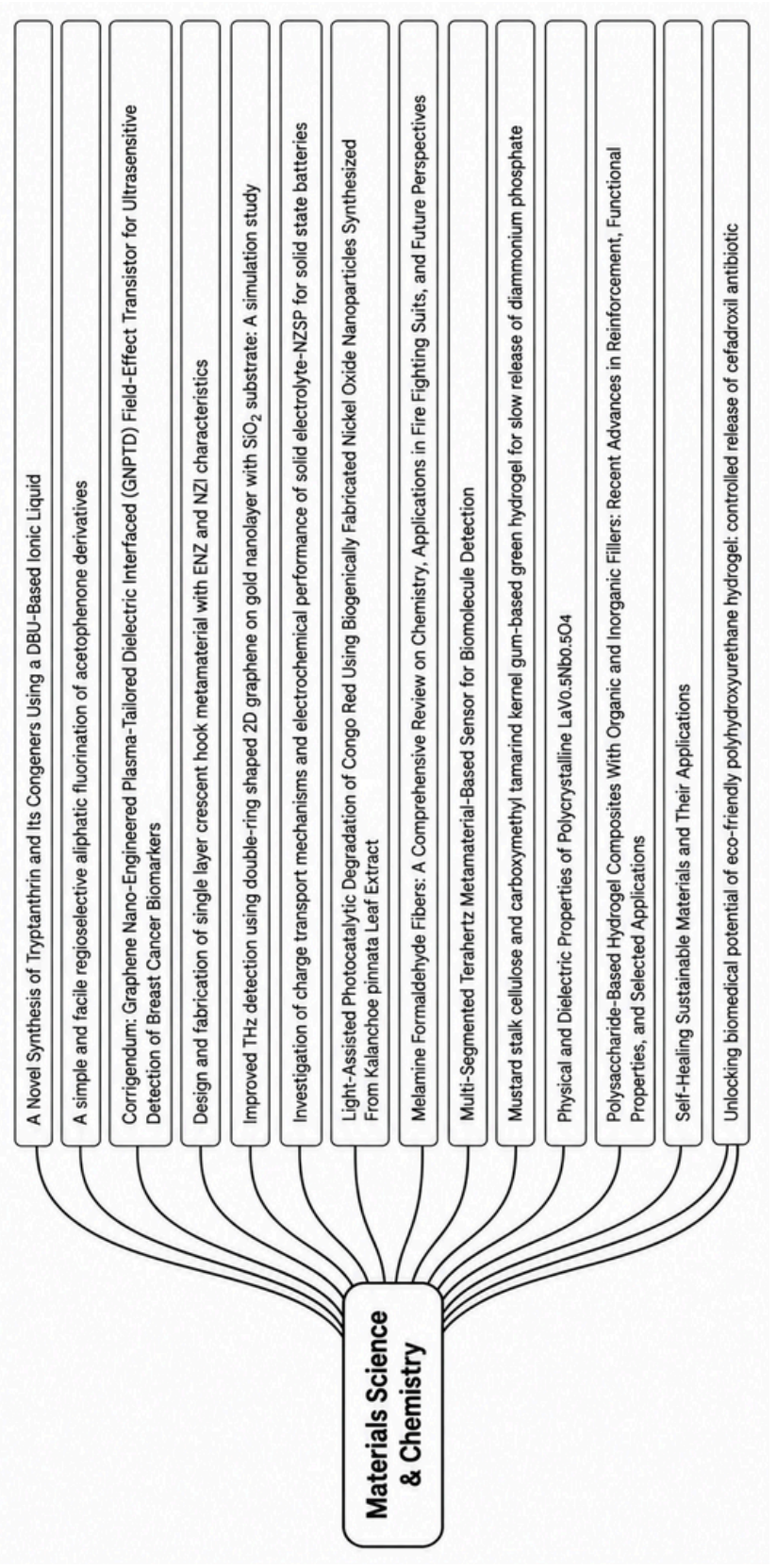
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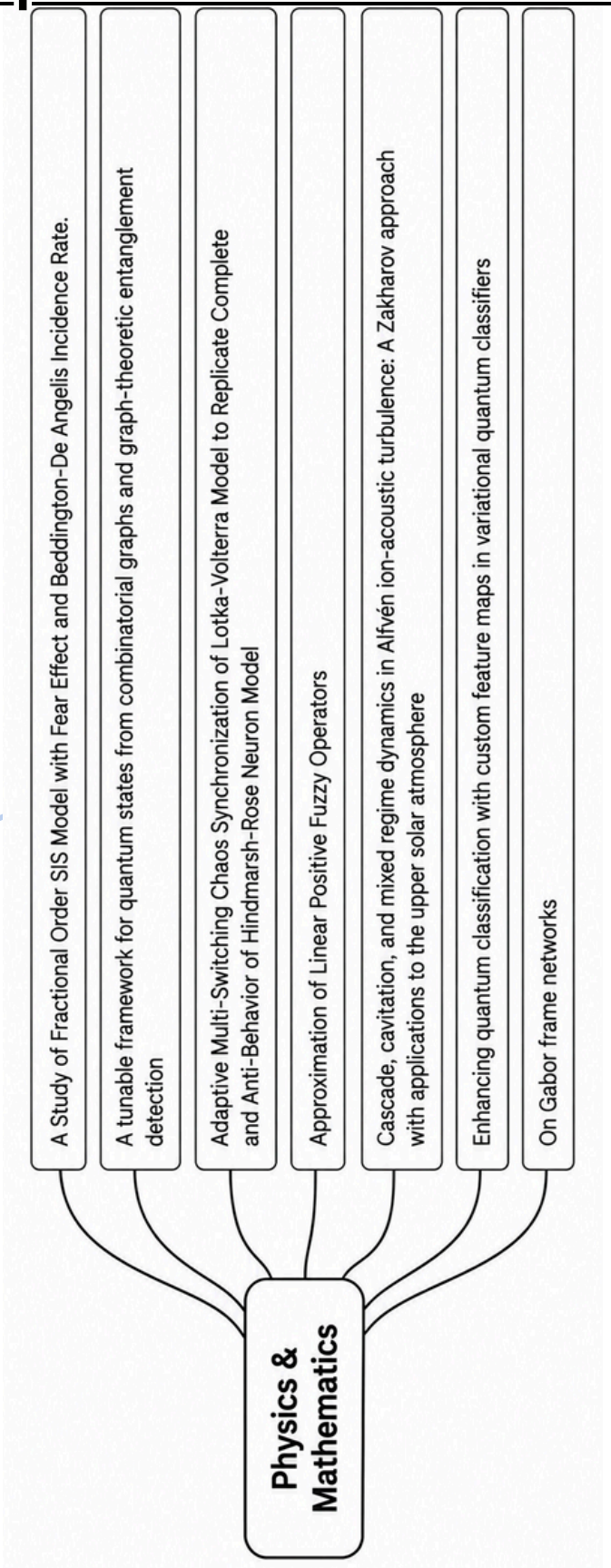
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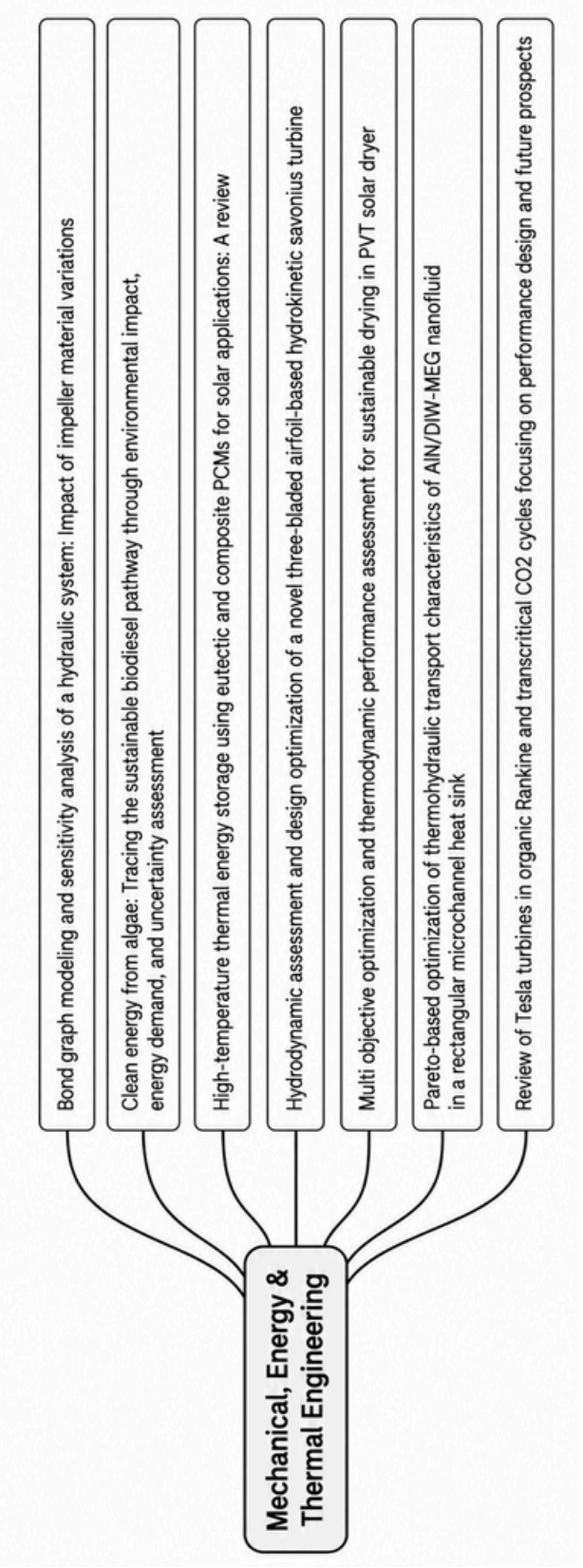
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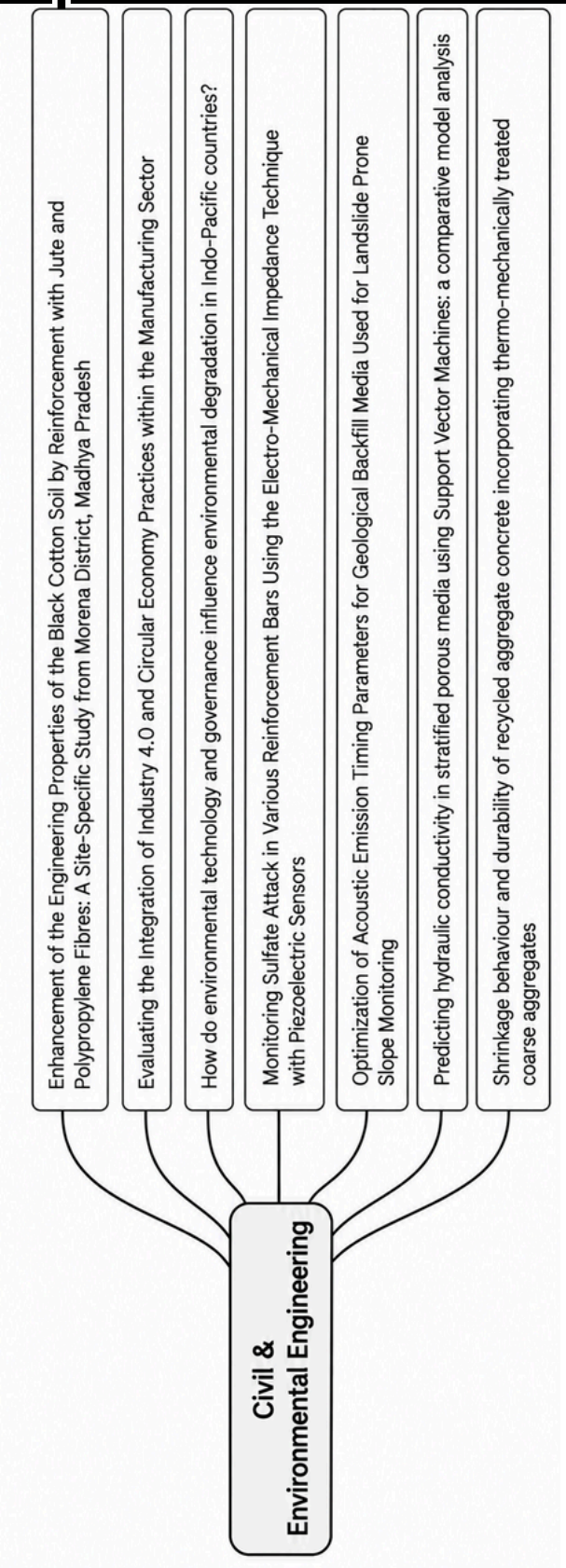
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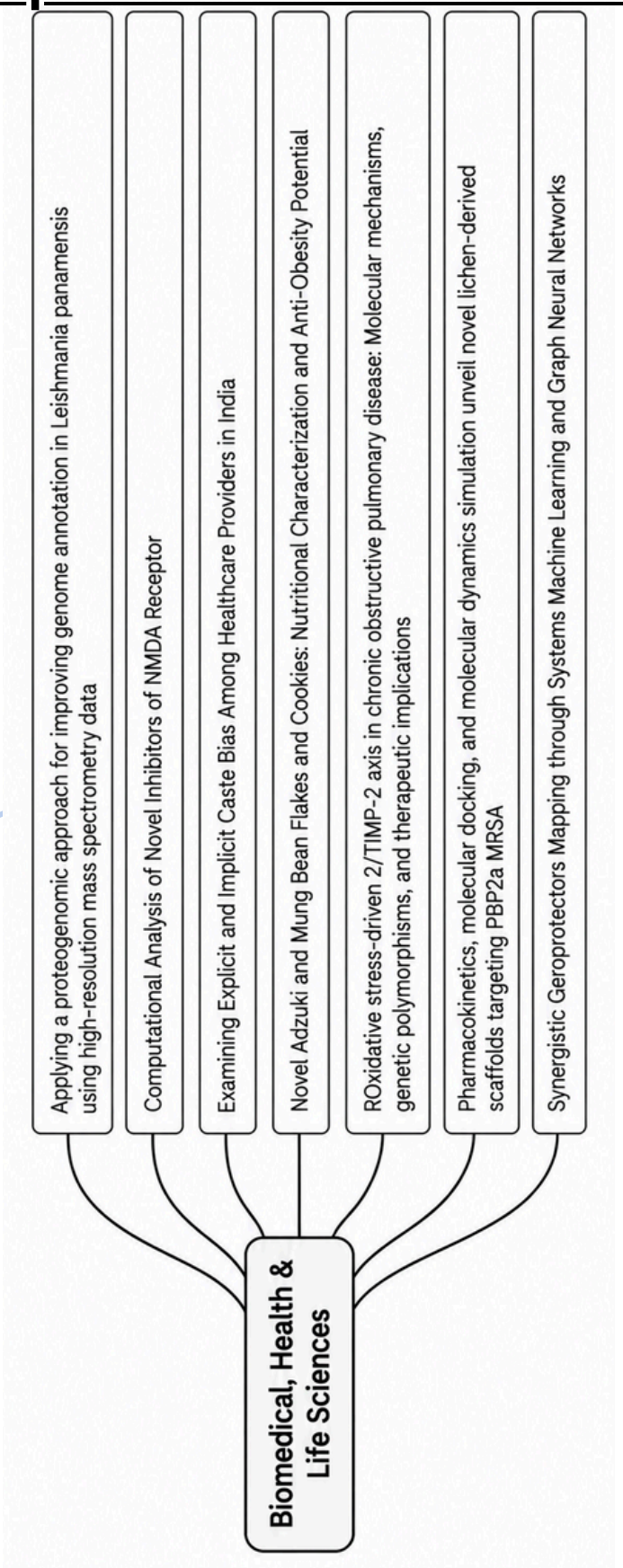
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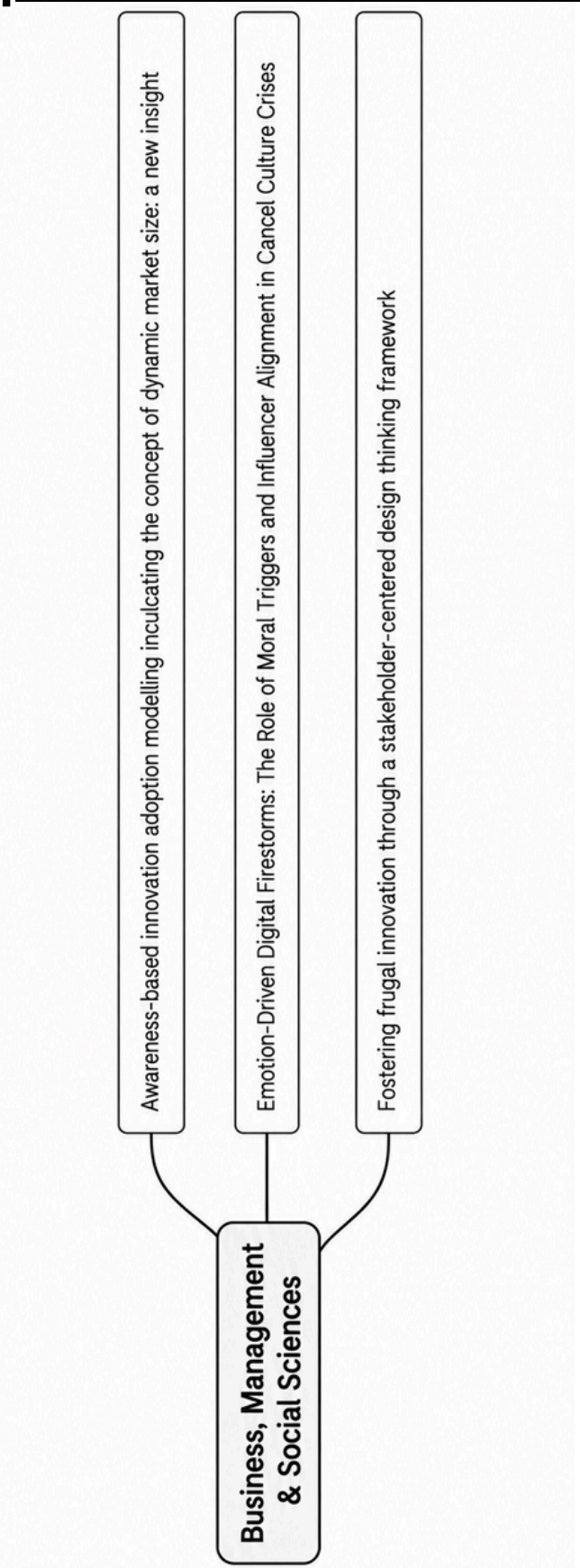
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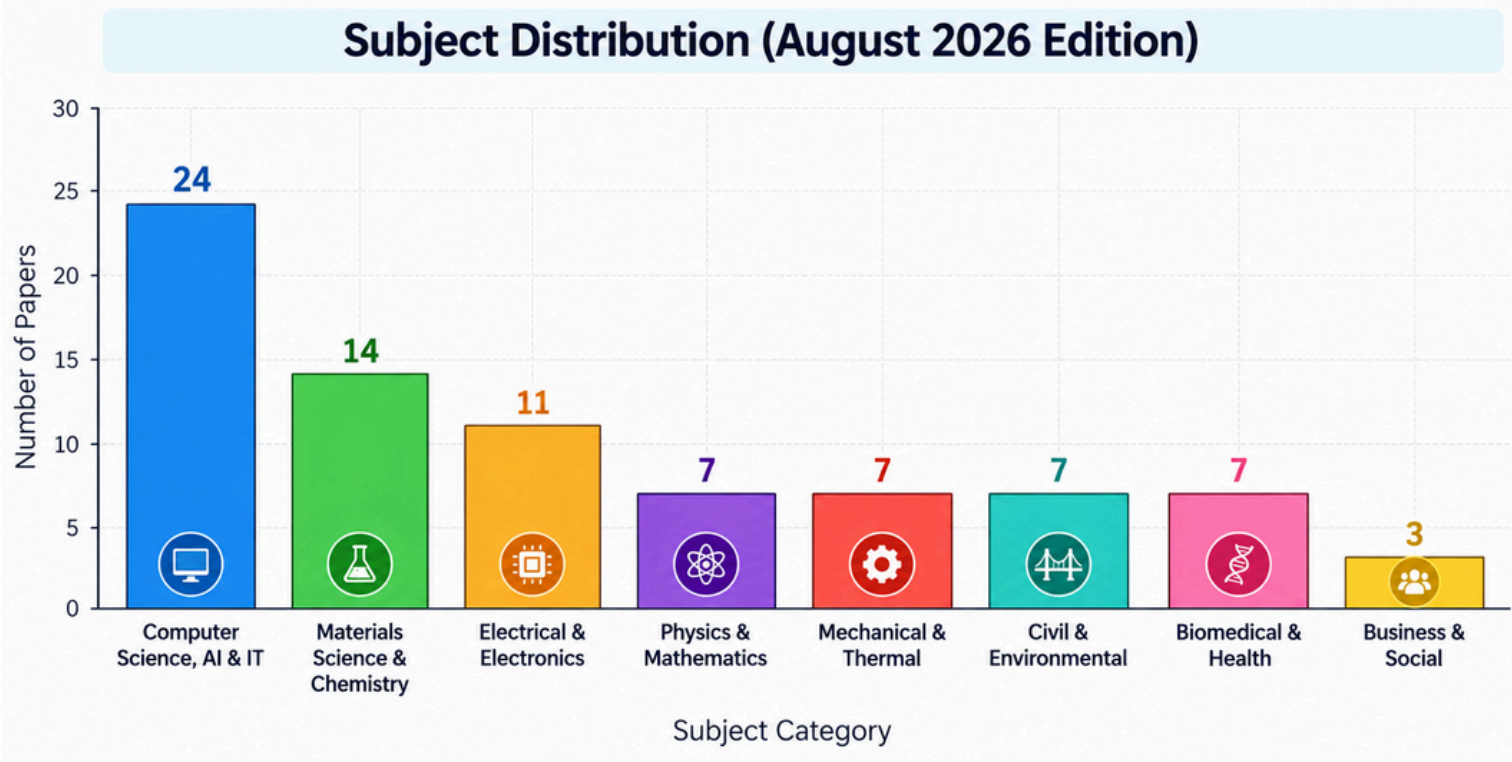
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