

List of Research Topics of Supervisors - RP 2024/2025 June batch

Faculty of Computing

- To apply for a research topic given below, RP teams must submit this form (<https://forms.office.com/r/QLkvEQfhMH>).
- Deadline for applying is 12th April 2024.
- If multiple teams apply for the same topic, the supervisor will select one team.
- If a supervisor selected a team for a topic, that team must prevent from seeking other topics or supervisors.
- Supervisors are advised to check the list of topics given by other supervisors before accepting any projects that students bring.

Topic ID	Topic	Supervisor
2024J_001	AI-based Crop Monitoring and Disease Detection	Prof. Anuradha Jayakody
2024J_002	Automated Irrigation Systems: Optimize water usage based on real-time data, weather forecasts, and soil moisture levels.	Prof. Anuradha Jayakody
2024J_003	Drone Technology in Agriculture: For aerial surveillance, crop monitoring, and pesticide spraying.	Prof. Anuradha Jayakody
2024J_004	Blockchain in Agriculture: For traceability, transparency, and secure transactions in the Agri supply chain.	Prof. Anuradha Jayakody
2024J_005	Smart Greenhouses: With climate control, lighting, and irrigation systems managed through IoT devices and sensors.	Prof. Anuradha Jayakody
2024J_006	Predictive Analytics for Yield Optimization: To forecast crop yields, optimize planting schedules, and enhance productivity.	Prof. Anuradha Jayakody
2024J_007	IoT based Livestock Monitoring and Management: Monitor livestock health, behavior, and environmental conditions	Prof. Anuradha Jayakody
2024J_008	Vertical Farming: Using controlled environments, hydroponics, and aeroponics for efficient urban agriculture.	Prof. Anuradha Jayakody
2024J_009	Agri-Robotics: Robots for planting, harvesting, weeding, and sorting to improve efficiency and reduce labor costs.	Prof. Anuradha Jayakody
2024J_010	A Data-Driven Approach to Team Formation in Software Engineering	Prof. Dasuni Nawinna
2024J_011	Personality Profiling for Career Recommendations in Computing	Prof. Dasuni Nawinna
2024J_012	Production Planning Tool for a Industrial Tire Manufacturing Factory	Prof. Dasuni Nawinna
2024J_013	A Data-Driven Approach to Predict Supply and Demand of Vegetables in SL	Prof. Dasuni Nawinna
2024J_014	Analysis of the Cognitive Complexity of a Software in terms of the Pre-Software Development Processes	Dr. Dinuka Wijendra
2024J_015	Analysis of the Cognitive Complexity of a Software in terms of the Post-Software Development Processes	Dr. Dinuka Wijendra
2024J_016	Deep Learning Retinal Image Analysis for Human Disease Prediction	Dr. Dinuka Wijendra
2024J_017	Use of federated learning for detecting network attacks on IOT edge devices	Dr. Harinda Fernando
2024J_018	GenAI usability in education and improve teaching and learning	Dr. Kalpani Manathunga
2024J_019	Warning system for pedestrian safety crossing railway lines	Dr. Nimal Ratnayake
2024J_020	Gen AI Autograders for grading student answer scripts.	Prof. Nuwan Kodagoda
2024J_021	Gen AI Generated Quizzes for different modules as learning material	Prof. Nuwan Kodagoda
2024J_022	Gen AI driven Chatbots that support module specific content	Prof. Nuwan Kodagoda
2024J_023	Blocky based programming environment for developing cross platform mobile applications.	Prof. Nuwan Kodagoda
2024J_024	Animation generator, creating simple instructional videos with ease (maybe using LLMs with stable diffusion)	Prof. Nuwan Kodagoda
2024J_025	Adding Common sense to automated system.	Dr. Samantha Rajapaksha
2024J_026	Train a Robot to Climb Staircase	Dr. Samantha Rajapaksha

2024J_027	Mobile and Simulation-based Approach to reduce the Dyslexia with children Learning Disabilities	Dr. Samantha Rajapaksha
2024J_028	A Framework for Tracking And Summarizing Daily Activities with Mobile Phone	Dr. Samantha Rajapaksha
2024J_029	Home energy management (HEM) system	Dr. Samantha Rajapaksha
2024J_030	Genetic Algorithms based Unmanned Aerial Vehicle(UAV) path planning in dynamic environments	Dr. Sanika Wijesekara
2024J_031	LORA base emergency communication	Dr. Sanika Wijesekara
2024J_032	An analysis of how to effectively leverage the diversity and complementary strengths of deep models to improve ensemble performances and uncertainty estimations.	Dr. Sanvitha Kasthuriarachchi
2024J_033	Meta-learning for Ensemble Construction: An implementation of a meta learning framework with adaptive ensemble methods.	Dr. Sanvitha Kasthuriarachchi
2024J_034	Mixed Reality based Trainer for Basic Cinematography Practice in Camera Shot Sizes, Movements and Shot Complexity	Mr. Aruna Ishara Gamage
2024J_035	Simulating Lens Characteristics for Advanced Cinematography Education: An Integrated Approach Using Mixed Reality and IoT	Mr. Aruna Ishara Gamage
2024J_036	Mixed Reality and IoT Enhanced Simulation of Optical Lens Characteristics for Advanced Physics Education	Mr. Aruna Ishara Gamage
2024J_037	Optimization of 3D Mesh Generation from 2D Images	Mr. Aruna Ishara Gamage
2024J_038	Application of Machine Learning in 3D Mesh Generation	Mr. Aruna Ishara Gamage
2024J_039	Construct the accurate full 3D mesh of a damaged or partial small scale object by scanning and identifying the damaged or partial object via a mobile camera	Mr. Aruna Ishara Gamage
2024J_040	Mobile application to scan and Extract historically and architecturally accurate data of an archaeological object	Mr. Aruna Ishara Gamage
2024J_041	Modelling of Artillery Fire and Simulation for the evaluation of its firing Efficiency	Mr. Aruna Ishara Gamage
2024J_042	Mixed reality based marksman training simulation to provide basic skills in firing small arms	Mr. Aruna Ishara Gamage
2024J_043	Threat mitigation in Machine Learning based IDS in healthcare environments	Mr. Kanishka Yapa
2024J_044	Automated IT KPI Allocation (AITKA): Streamlining Team Assignments for Project Success.	Ms. Buddhima Attanayaka
2024J_045	Reading and Comprehension Assistant for Primary School Students	Ms. Manori Gamage
2024J_046	Intrusion Detection Systems Using Deep Learning for Autonomous Vehicles	Ms. Samadhi Rathnayake
2024J_047	Blockchain Technology for Secure Vehicle Communication and Data Integrity	Ms. Samadhi Rathnayake
2024J_048	Leveraging Hybrid Expert Systems with Deep Learning for Precision Farming	Ms. Samadhi Rathnayake
2024J_049	Investigating the Impact of Robot Appearance and Behavior on Human Trust and Acceptance	Ms. Samadhi Rathnayake
2024J_050	Neuro-Inspired Approaches to Visual Perception in human emotion detection	Ms. Samadhi Rathnayake
2024J_051	Adaptive Curriculum Design for Individualized Education using Self-Organizing Maps	Ms. Samadhi Rathnayake
2024J_052	Memory Augmentation and Retrieval in Educational Content Delivery for Optimizing Learning Pathways using Hopfield Networks	Ms. Samadhi Rathnayake
2024J_053	Integrated Deep Learning Framework for Health Monitoring, Rescue Operations, and Population Management of Street Dogs	Ms. Samadhi Rathnayake
2024J_054	Children's Cognitive Development by Modeling Dynamic Learning Strategies for Enhanced Problem-Solving Skills with Adaptive Reasoning Theory (ART)	Ms. Samadhi Rathnayake
2024J_055	Adaptive E-Learning Platforms for Individuals with Down Syndrome	Ms. Sanjeevi Chandrasiri
2024J_056	IoT-Enabled Nitrogen Fixation Management for Sustainable Plant Growth	Ms. Sanjeevi Chandrasiri
2024J_057	Cognitive Health and Dementia Care	Ms. Sanjeevi Chandrasiri
2024J_058	Urban Agriculture and Vertical Farming	Ms. Sanjeevi Chandrasiri
2024J_059	Energy Optimization and Renewable Integration	Ms. Sanjeevi Chandrasiri
2024J_060	Language Guru - A mobile platform to improve Soft skills of Young Teenagers	Ms. Suriya Kumari
2024J_061	BeYou - an app to teach beauty tips and makeup	Ms. Suriya Kumari
2024J_062	User Story Builder - Convert informal conversation to Agile User Stories	Ms. Suriya Kumari
2024J_063	AI powered Automated Mini-Green green house for urban usages	Prof. Pradeep Abeygunawardhana