

CST3990 – Project Ideas (2023/2024 AY)

Projects to be supervised by Dr. Girish Bekaroo (10 projects):

1. Automated Accident Monitoring in Mauritius from Social Media Posts (using AI based Location Intelligence and Analysis of Social Media Posts)
2. Mining Social Media for Automated Identification of Animals in Distress
3. An Automated Attendance System Using Face Recognition
4. A Smart Online Learning System with Real-Time Facial Emotion Recognition and Analysis
5. Analysing Student Engagement during Online Learning through Eye Tracking and Head Movement
6. Browser extension for detection of fake news
7. Learning Computer Networks: The Application of Augmented Reality
8. An AR-Driven Tool for Architectural Representation of Buildings
9. Real-Time Road Traffic Noise Maps Based on Noise Monitoring
10. Application of Blockchain to Improve Traceability of Counterfeit Medicine
11. Automated Detection, Classification and Counting of Fishes in Aquariums
12. Using Computer Vision for Intelligent Fish Feeding in Aquariums
13. Intelligent Drone-based Parking Lot Surveillance System
14. Drone-based Air Quality Monitoring System
15. Potholes detection on roads using convolutional neural networks with images captured via UAV
16. An IoT Self-Diagnostic Platform (E.g. Measure blood pressure, heart rate, etc, and send to doctors privately)

Projects to be supervised by Mr. Aditya Santokhee (10 projects):

More than 1 student can choose the same topic.

17. Weather App: Create a weather application that fetches real-time weather data from an API and displays it to users. You can add features like location-based weather forecasts and weather map integration.
18. Expense Tracker and forecaster: Develop a personal finance app that helps users track their expenses, categorize spending, and generate reports. Consider adding features like budgeting and expense analysis.
19. Machine Learning Project: Explore machine learning by working on a project such as sentiment analysis, image recognition, or recommendation systems. You can use libraries like TensorFlow or scikit-learn.
20. Game Development: Create a simple 2D or 3D game using game development frameworks like Unity or Unreal Engine.
21. Health and Fitness App: Design an app that tracks users' health and fitness data, such as steps taken, calories burned, and meal tracking. You can integrate with wearable devices for data collection.
22. Home Automation System: Create a home automation system that allows users to control smart devices like lights, thermostats, and security cameras through a mobile app or web interface.
23. Virtual Reality (VR) Project: Explore VR development by building an immersive VR experience or application. You can use platforms like Oculus Rift or HTC Vive.
24. Augmented Reality (AR) Application: Develop an AR app that overlays digital information or graphics on the real-world using AR frameworks like ARKit or ARCore.
25. Smart City Solution: Develop a software solution that addresses urban challenges, such as traffic management, waste collection optimization, or public transportation tracking.

26. Develop a mobile app for teaching hazard perception to novice drivers.

Projects to be supervised by Mr. Karel Veerabudren (up to 6 projects):

27. IoT-Based Smart Traffic Management: Create an intelligent traffic management system using IoT devices and machine learning to optimize traffic flow, reduce congestion, and improve safety.
28. IoT-Based Smart Agriculture: Create an IoT solution for smart agriculture, enabling farmers to monitor and control irrigation, soil conditions, and crop health.
29. IoT for Disaster Management: Build an IoT-based disaster management system that uses sensors, drones, and communication devices to respond to natural disasters effectively.
30. AI-Enhanced Smart Tourism: Create a smart tourism platform that offers personalized travel recommendations, real-time location-based services, and interactive tour guides for tourists.
31. AI-Powered Chatbot for IT Support: Design an AI-driven chatbot that can provide IT support and troubleshooting assistance to users in an enterprise environment.
32. AI-Powered Smart Home Security: Create an AI-driven smart home security system that uses computer vision and machine learning to detect and respond to security threats in real-time.
33. Smart Mental Health Support: Develop a mental health support platform that offers self-help resources, stress management techniques, and access to mental health professionals.
34. Machine Learning for Educational Data Mining: Apply machine learning techniques to analyze educational data, identify learning patterns, and offer insights for curriculum improvement.

Projects to be supervised by Mr. Nivede Issur (10 projects):

35. Use of Machine Vision to facilitate house chores.
36. Use of Machine Vision to enhance security system.
37. Use of Machine Vision for navigation in an indoor facility.
38. Building of an Indoor navigation assistance device for a visually Impaired person.
39. Development of a fully/semi-autonomous driving wheelchair for indoor use.
40. Use of Robots in Sports.
41. Use of Robots in Education.
42. Use of Robots to enhance life of the elderly.
43. IoT solution at home.
44. IoT solution at a public/private institution (University, Office, Hospital etc).

Projects to be supervised by Ms. Waseemah Moedeen (10 projects):

45. Development of an augmented reality instruction reader for medicine packages – The idea is to overlay 3D objects, videos, images and relevant information on medical boxes for better understanding of the medicine usage. Can consider using Amazon Web Services for development.
46. Augmented Reality Driver Assistant– Use of AR to help drivers better understand traffic signs, lanes and other relevant driving information in real time.
47. Development of a gesture language translator using machine learning – Translating sign language into texts to facilitate understanding.
48. Flower (or any other object) classification machine learning project - Quite basic for students new to machine learning; open to implementing advanced features.
49. Using machine learning to predict loan eligibility for bank clients.
50. Using facial recognition and augmented reality to display and monitor gym members' fitness plans.
51. Predicting product sales in supermarkets using machine learning.
52. Music recommendation application based on facial expression/emotion.

- 53. Using Amazon Web Services for handwritten image recognition on medical prescription
- 54. Hotel Recommender application using sentiment analysis

Also interested to supervise any other project topics related to ML/AI, Augmented Reality and using Amazon Web Services technologies.

Projects to be supervised by Dr. Amar Seeam (up to 6 projects):

- 55. Animal Behavior Classification using Machine Learning from Accelerometer Data
- 56. Cattle Health Management System using IoT" (e.g. GPS, RFID, Arduino Nano-hardware will be provided)
- 57. Explore the potential of Moodle (aka the Unihub MyLearning platform) and GPT for AI assistance
- 58. 2D or 3D Visualisation of the Wakashio oil spill using PyGNOME
- 59. Chatbot Assisted Smart Home Automation System using Telegram and Voice commands
- 60. Gesture controlled generative music synthesiser
- 61. Legal Chatbot using Telegram
- 62. Chatbot Assisted Virtual Tour Guide for Tourist Locations
- 63. Student Project Management and Allocation System
- 64. Classroom Assistance Chatbot using Telegram

Projects to be supervised by Mr Vishant Unathras (10 projects)

- 65. Using Smart Camera based Object detection using machine learning and Computer Vision.
- 66. Design and Implementation of an automated vehicle identification system
- 67. Transforming Fleet Mgmt. Application to a Business Intelligence Numerical Model
- 68. Build an Application to generate a virtual calibration table for non-linear fuel tanks based on deviations obtained between fuel indent v/s system fills detected.
- 69. Design and build a mobile app to remotely (gsm) and locally (serial port) read and write comprehensive configurations to GPS devices.
- 70. Design and build an application to store all configurations of each customer vehicle's GPS devices.
- 71. Implement an application that monitors data usage of IoT devices and raise alerts for over consumption. The software should be able to generate forecast for monthly billing and validate with actual billing received from network operators.
- 72. Build an application that smoothen fluctuations on graphs from sensors' RAW data. Smoothing parameters should be configurable by the user
- 73. Design and implementation of a Fixed Asset Management Information System with IoT sensors.
- 74. Automated Smart Parking with integrated payment solution based on IoT Sensors
- 75. Indoor Navigation System (INS) and asset tracking solution
- 76. Development a Driver Scorecard Module with AI/ML components to be integrated in a Fleet Management Solution
- 77. Route prediction using AI and machine learning – Salesman Problem
- 78. Use of blockchain to authenticate documents integrity
- 79. Software based Power management in IoT devices

Projects to be supervised by Mr Mrinal Sharma (8 projects)

- 80. Using IPFS and Blockchain to secure records
- 81. Develop a Blockchain based app for Legal Evidence Handling

82. Develop a Blockchain based app for tracking medicine availability in healthcare centers
83. Development of an action-adventure game
84. Machine Learning-based Early Detection of Hypertension through Remote Monitoring
85. Smart Gym Companion - an intelligent system to monitor fitness routine of the user (Integrate Nutrition, Training, and Health Monitoring)
86. Development of a task and project management app that rewards user for tasks achieved (once task achieved user rewarded)
87. Development of a Smart Home System
88. Intruder Detection and Alert System for Smart Homes

Projects to be supervised by Ms. Aisha Idoo (15 projects)

89. Development of a Machine Learning-Powered Personalized Health and Wellness Assistant
90. Creating an AR-Based Interior Design and Furniture Shopping App with Machine Learning
91. Building an AI-Powered Personal Cybersecurity App with Machine Learning
92. Integrating Machine Learning and Pose Detection Technology in Temple Run Game
93. Developing a Machine Learning-Enhanced Specialized Foot Health Assessment App
94. Building a Machine Learning-Powered Pet Emotional Translator using Image Analysis
95. Developing a Machine Learning-Driven Color Vision Testing App (Color blindness test)
96. An AI-Powered and Machine Learning-Enabled App for Acne Detection and Skincare Advice
97. An AI-Powered Mental Wellness App with Machine Learning-Based Mood Tracking and Emotional Support
98. A Cooking App with AI Recipe Generation, Ingredient Recommendations, and Machine Learning-Based Flavor Profiling
99. An AI-Powered Travel Planning App with Machine Learning for Personalized Itinerary Recommendations and Predictive Travel Insights
100. An AI-Enhanced Music Discovery App with Machine Learning-Powered Song Recommendations and Mood-Based Playlists.
101. Development of a Car Marketplace App with a Recommendation Engine for Rentals and Purchases
102. Development of a property Marketplace App with a Recommendation Engine for Rentals and Purchases
103. Development of a 3D Body Scan App with Computer Vision and AI for Water Retention Analysis
104. Development of an AI-Driven Waste Management and Recycling App with Machine Learning and Personalized Waste-Reduction Recommendations for Sustainable Living
105. Development of an AI-Enhanced Private Tutoring and Payment App with ML-Powered Learning Insights

Projects to be supervised by Dr. Zia Lallmahomed (4 projects)

106. Smart Movie Web/Mobile Recommender App (AI)
107. Student Attendance and Engagement Monitoring App with Facial Recognition
108. Intelligent Hotel Recommender System (AI)
109. IOT Based Smart Parking (Sensors/NodeJS)

Projects to be supervised by Mr Parvesh Seeburrun (6 projects)

110. AI-Infused Mobile Game for Education

- 111. AI enhanced food donation app for restaurants.
- 112. Development of a chatbot for SPARC complex
- 113. Image and Video Captioning Using Deep Learning
- 114. Mobile/web app for the monitoring of calory intake (Using AI)
- 115. Web app for MDX alumni.(Like Slack)
- 116. AR-Powered Fashion Try-On App.
- 117. Customised mobile app to assist under performing students.
- 118. Carpooling app with machine learning
- 119. AR App for MDX student life experience enhancement
- 120. Smart app for Goods exchange using Machine Learning.

Projects to be supervised by Dr Suraj Juddoo (14 projects)

Projects in the areas of Big Data and AI