**Problem 1:**Facial Emotion Recognition for Human-Computer Interaction

**Name:**Facial Emotion Recognition for HCI

**Abstract:**This problem involves creating algorithms for recognizing and interpreting human emotions from facial expressions in real-time. Accurate emotion recognition can enhance human-computer interaction by allowing systems to respond to user emotions effectively.

**Conclusion:**Solving this problem will lead to more emotionally aware and responsive computer systems, improving user experiences in various applications.

**Problem 2:** Autonomous Drone Navigation in Complex Environments

**Name:**Autonomous Drone Navigation

**Abstract:**This problem statement addresses the challenge of developing computer vision algorithms that enable drones to autonomously navigate through complex and dynamic environments, avoiding obstacles and ensuring safe flight.

**Conclusion:**Successful solutions to this problem will advance the capabilities of autonomous drones, with applications in surveillance, search and rescue, and aerial inspections.

**Problem 3:**Object Detection and Recognition in Unstructured Environments

**Name:**Object Detection in Unstructured Environments

**Abstract:**The problem focuses on the development of robust algorithms for detecting and recognizing objects in unstructured and cluttered environments, where objects may vary in size, orientation, and appearance.

**Conclusion:**Solving this problem will have wide-ranging applications in robotics, industrial automation, and augmented reality, enabling machines to interact effectively with the real world.

**Problem 4:**Real-Time Sign Language Recognition

**Name:**Real-Time Sign Language Recognition

**Abstract:**This problem statement involves creating computer vision systems that can recognize and interpret sign language gestures in real-time. Such systems can facilitate communication for the deaf and hard of hearing.

**Conclusion:**Successfully addressing this problem will bridge communication gaps and empower individuals with hearing impairments to interact more naturally with technology and society.

**Problem 5:** Visual Question Answering for Accessibility

**Name:**Visual Question Answering for Accessibility

**Abstract:**This problem addresses the development of AI models capable of answering questions related to images, making visual content more accessible to individuals with visual impairments.

**Conclusion:**Solutions to this problem will enhance accessibility and inclusivity, enabling visually impaired individuals to gain insights from visual content through natural language interaction.

**Problem 6:**Unmanned Aerial Vehicle (UAV) Monitoring of Wildlife Habitats

**Name:**UAV Wildlife Habitat Monitoring

**Abstract:**This problem statement focuses on using computer vision and UAVs to monitor wildlife habitats and assess the health of ecosystems. The goal is to automate the process of collecting data for conservation efforts.

**Conclusion:**Solving this problem can significantly improve wildlife conservation strategies, providing researchers and conservationists with valuable insights into ecosystem dynamics.

**Problem 7:** Visual-Semantic Understanding in Autonomous Vehicles

**Name:**Visual-Semantic Understanding in Autonomous Vehicles

**Abstract:**This problem involves developing computer vision systems that can understand and interpret the semantics of the visual environment to improve decision-making in autonomous vehicles.

**Conclusion:**Solutions to this problem will enhance the safety and reliability of autonomous vehicles, accelerating their adoption and impact on transportation.

**Problem 8:**Scene Understanding for Virtual Reality (VR)

**Name:**Scene Understanding for VR

**Abstract:**This problem addresses the need for computer vision systems to understand and reconstruct 3D scenes accurately for immersive virtual reality experiences.

**Conclusion:**Solving this problem will lead to more immersive and realistic VR environments, benefiting applications in gaming, education, and training.

**Problem 9:**Visual Inspection of Industrial Manufacturing Processes

**Name:**Visual Inspection in Manufacturing

**Abstract:**This problem statement focuses on using computer vision to automate the inspection of industrial manufacturing processes, identifying defects and ensuring product quality.

**Conclusion:**Successful solutions to this problem will improve manufacturing efficiency and product consistency.

**Problem 10:**Multimodal Medical Image Analysis

**Name:**Multimodal Medical Image Analysis

**Abstract:**This problem involves developing algorithms that can analyze and integrate information from multiple medical imaging modalities, such as MRI, CT, and ultrasound, to improve diagnostic accuracy.

**Conclusion:**Addressing this problem will enhance medical diagnosis and treatment planning, potentially saving lives through more accurate and comprehensive medical imaging analysis.

**Problem 11:** Autonomous Agricultural Drone Operations

**Name:**Autonomous Agricultural Drones

**Abstract:**This problem statement focuses on creating computer vision systems that enable drones to autonomously perform tasks in agriculture, such as crop monitoring, pest detection, and precision spraying.

**Conclusion:**Solving this problem will revolutionize modern agriculture, making it more efficient, sustainable, and productive.

**Problem 12:**Visual-Based Navigation for Robots in Dynamic Environments

**Name:**Visual-Based Robot Navigation

**Abstract:**This problem addresses the challenge of enabling robots to navigate autonomously in dynamic environments using computer vision, adapting to changing obstacles and conditions.

**Conclusion:**Solutions to this problem will have applications in logistics, healthcare, and home automation, improving the capabilities of service robots.

**Problem 13:** Human Action Recognition for Video Surveillance

**Name:**Human Action Recognition in Surveillance

**Abstract:**This problem statement involves developing algorithms to recognize and classify human actions in video surveillance footage for security and anomaly detection.

**Conclusion:**Successful solutions will enhance the effectiveness of video surveillance systems, improving public safety and security.

**Problem 14:** Cross-Modal Image Retrieval

**Name:**Cross-Modal Image Retrieval

**Abstract:**This problem addresses the challenge of developing algorithms that can retrieve images based on textual queries or vice versa, facilitating content search in multimedia databases.

**Conclusion:**Solutions to this problem will improve information retrieval and search capabilities in multimedia applications.

**Problem 15:** Remote Sensing and Environmental Monitoring

**Name:**Remote Sensing for Environmental Monitoring

**Abstract:**This problem statement focuses on using computer vision and remote sensing techniques to monitor environmental changes, such as deforestation, urban expansion, and climate-related phenomena.

**Conclusion:**Addressing this problem can provide critical insights for environmental conservation and disaster management, aiding decision-makers in preserving natural resources and mitigating environmental risks.