User-Recognition Drone:

Drone Activation Upon User Recognition and Face Tracking

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Poster Abstract

The use of unmanned aerial vehicles (UAVs) or drones is becoming increasingly popular for various applications including surveillance, delivery, and entertainment. In this study, we present an autonomous drone system that can recognize and tracking a certain user by analyzing images from its front-facing camera. The system employs machine learning algorithms that are trained with a combination of general population faces and images of the specific user that the drone is supposed to recognize. Upon recognizing the target user, the drone will autonomously turn on and take off while continuously tracking the user's face to keep it in the center of the camera frame. The system uses a deep learning-based face recognition model to achieve high accuracy in recognizing the target user. The model is trained with a large dataset of images that include variations in poses to ensure robustness and accuracy. In addition, the system employs a tracking algorithm that calculates the movement of the target user and uses this information to adjust the drone's movement to maintain the user's face in the center of the frame. The tracking algorithm uses a combination of computer vision and machine learning techniques to ensure accurate and efficient tracking of the user's movements. Our experimental results demonstrate the effectiveness of the proposed autonomous drone recognition and tracking system in recognizing the target user and continuously tracking their movements. The system can have a wide range of applications, including security, search and rescue, and monitoring of public events.

A person wearing a helmet

Description automatically generated with low confidence

Fig. 1. Snapshot with the drone’s camera detecting human frontal face.

­­­­­­­ A drone with four propellers

Description automatically generated with low confidence

Fig. 2. Tello drone which is being used.