**📌 Breakdown of the Training Approach:**

1. **Deep Q-Network (DQN)**
   * A **Reinforcement Learning (RL) model** that learns to make decisions based on rewards.
   * Uses a **fully connected neural network** with three layers.
   * Learns to **accept or reject** access based on facial recognition features.
2. **Firefly Algorithm (FA)**
   * An **optimization algorithm** inspired by the movement of fireflies.
   * Optimizes the **weights of the DQN** to improve performance.
   * Helps in fine-tuning the **Q-values for better decision-making**.

**🔹 Why Use DQN + Firefly Algorithm?**

* **DQN learns the best policy** over time but might get stuck in suboptimal solutions.
* **Firefly Algorithm helps escape local optima** by tweaking the neural network weights.
* This combination makes **facial recognition-based security access control more efficient.**