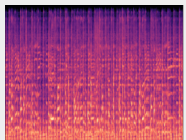
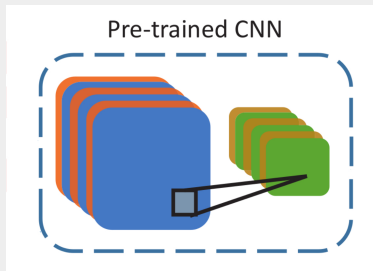


Hybrid meta heuristic feature selection

Mel spectrograms



Feature extraction using pre-trained CNN



Cuckoo search algorithm

Initial population → Apply cuckoo search algorithm → Best population

Whale optimization algorithm

Initial population → Apply whale optimization algorithm → Best population

Hybridization of cuckoo search and whale optimization algorithm

Apply AWCM algorithm → Intermediate population

Apply SOPF algorithm

Optimal feature set