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Detection Algorithms for Communication Systems in Unknown Environments

Stanford inventors have developed a method to incorporate machine learning algorithms to apply to signal detection in communication system receivers. These algorithms are able to efficiently adapt to their surrounding unknown environment in order to enable reliable and robust signal detection and consequently end-to-end communication. This method is advantageous because it improves the performance and resilience of the detection algorithm, leading to higher data rates with fewer communication errors. Furthermore, this system can be used to communicate in new and unknown systems without knowledge of the transmission signal's propagation from transmitter to receiver.

Applications

- Any communication system where the channel model is unknown or intractable (e.g. chemical, wireless or optical systems)

Advantages

- Improvement in performance
- Resilience of detection algorithm, translating to higher data rates
- Can be used for communication in new and unknown systems

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