

**CAAM 600: PASSIVE VOICE. Revise the following paragraph to eliminate or at least radically reduce the unnecessary use of passive voice.**

A design methodology using task partitioning is developed to make use of the inherent parallelism and bit level computations in the algorithms. The task partitioning methodology is applied to estimation and detection to achieve a real-time implementation. Further, a custom hardware design is built for channel estimation as a study to see the effectiveness of a VLSI implementation for the base-station receiver. The VLSI implementation is developed to use pipelining and parallelism effectively and take advantage of the bit level computations. The design space is explored for area-time tradeoffs and an area-time efficient solution which meets the real-time requirements is implemented.