

A study on MIMO channel and space time coding for telemedicine applications

ABSTRACT

The needs to provide medical services in remote areas have motivated researchers to develop telemedicine systems. In most cases, it is very likely that very remote areas and disaster struck areas lack telecommunication infrastructure. Telemedicine system operating in such areas must have advance wireless technology supporting it at the physical layer. The design of the physical layer is a key to the quality of the system, which in turn will also define the quality of the medical services. Since a complete telemedicine system must have the ability to serve broadband application such as video conferencing, it is mandatory for us to increase the limited capacity of the wireless channel. One way to achieve that is by using the concept of Multiple Input Multiple Output (MIMO) channel, which possesses higher channel capacity compared to the regular Single Input Single Output (SISO) channel. Furthermore, to optimize the channel capacity given by a MIMO channel, one needs to apply Space Time Coding. The usage of Space Time Coding is beneficial not only for telemedicine but also for any industrial and scientific fields which require broadband wireless communication link for high data transmission rate.