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Recent Development in Closed-loop Visual Simulations

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This seminar will focus on new ways to perform visual simulation of complex systems using the computational power of the Graphic Processing Units (GPU). The recent advances of GPU capable of performing not only graphic calculations but also general computing at order of magnitude faster than the traditional CPU has revolutionized the way Engineers and Scientists can explore complex phenomena. The processing power of GPU is an unprecedented revolution in computing as it offers large scale parallel multi-treads computing and true high-speed interconnects at low cost. Today's GPU can now help us bridge the gap between simulation and visualization, allowing us to develop true computational steering environments. In this talk, we will review the most recent advances in GPU development and describe how to design closed-loop visual simulation environments for application in computational medicine and manufacturing.