Optimización estocástica de ganancia variable en sistemas de óptica adaptativa para comunicaciones ópticas atmosféricas

Jurado-Navas, Antonio

Publication date:
2015

Optimización estocástica de ganancia variable en sistemas de óptica adaptativa para comunicaciones ópticas atmosféricas

Abstract—*In this work, the stochastic parallel gradient descent algorithm with adaptive loop gain is analyzed to optimize the convergence characteristics of blind correction adaptive optics systems in free space optical communications. As a result, two variable loop gain functions are proposed and a laboratory testbed consisting of a deformable mirror, a Shack-Hartmann wavefront sensor and control software is used to compare the different options. Experimental results show that an adaptive variable loop gain based on a negative exponential function achieves higher values for the metric used with fewer number of iterations*.