Deep neural networks for non-modulated Pyramid Wavefront Sensors

Camilo Weinberger*[1], Jorge Tapia[1], and Esteban Vera†[2]

[1]Pontificia Universidad Católica de Valparaíso – Chile
[2]Pontificia Universidad Católica de Valparaíso – Chile

Abstract

The pyramid wavefront sensor (PyWFS) (1) is one of the best contenders to use on adaptive optics (AO) for extremely large telescope thanks to its performance, resolution and high sensitivity compared with other wavefront sensors. However, the PyWFS a limited linearity. To overcome this problem, the PSF is modulated around the pyramid apex using a Tip-Tilt mirror (TTM), where the modulation radius is defined by the non-dimensional value

Keywords: Wavefront sensing, deep learning, machine learning, adaptive optics

*Speaker
†Corresponding author: esteban.vera@pucv.cl