1023-49-1069 **Yanina Landa*** (ylanda@math.ucla.edu), UCLA Mathematics Department, Los Angeles, CA 90095-1555. *Visibility of Point Clouds and Mapping of Unknown Environments.*

We present an algorithm for interpolating the visible portions of a point cloud that are sampled from opaque objects in two or three dimensional bounded environment. The point clouds are then projected onto a sphere centered at the observing locations. Essentially non-oscillatory (ENO) interpolation is performed on the projected data. Curvatures of the occluding objects can be approximated and used in many ways. We show how this algorithm can be incorporated into algorithms for mapping an unknown environment. (Received September 25, 2006)