



Figure III.4: The fundamental vectors of the Phong lighting model. The surface normal is the unit vector  $\mathbf{n}$ . The point light source is in the direction of the unit vector  $\ell$ . The viewpoint (eye) is in the direction of the unit vector  $\mathbf{v}$ . The vectors  $\ell$ ,  $\mathbf{n}$  and  $\mathbf{v}$  are not necessarily coplanar.