On the geometry of the affine shape operator

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Wed 27/11/2019, 14:45, Dissertantenzimmer (8th floor)

Affine differential geometry deals with properties of objects, which are invariant with respect to volume preserving affine maps. In case of a hypersurface, the corresponding structures mainly depend on the affine normal, which is introduced first (following Nomizu/Sasaki).

The properties of induced geometrical objects show remarkable differences to euclidean geometry. In a number of examples we try to improve the geometric understanding of phenomena which appear as analogues to those in euclidean geometry.