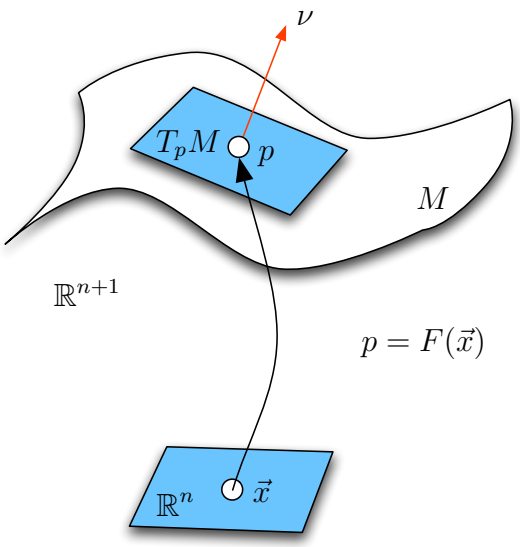
Evolution of Quantities under Mean Curvature Flow



$$\boxed{\frac{\partial F}{\partial t} = -H\,\nu = \vec{H}} \qquad \text{(MCF)}$$

Definitions and basic properties

Metric and 2^{nd} fundamental form:

$$g_{ij}(\vec{x}) := \left(\frac{\partial F(\vec{x})}{\partial x_i}, \frac{\partial F(\vec{x})}{\partial x_j}\right) \qquad h_{ij}(\vec{x}) := -\left(\nu(\vec{x}), \frac{\partial^2 F(\vec{x})}{\partial x_i \partial x_j}\right) \qquad x \in \mathbb{R}^n$$

$$g := (g_{ij}) \qquad A := (h_{ij})$$

$$H := g^{ij} h_{ij} \qquad |A|^2 := g^{ij} g^{kl} h_{ik} h_{jl}$$