Envelopes of families of linear spaces

We consider families of $(n-r)$-dimensional linear spaces parameterized by a projective variety $X \subset \mathbb{P}^n$ of dimension r. The envelope of the family is the branch locus of the map from the total space of the family to $\mathbb{P}^n$. The *evolute* of X is the envelope of the family of normal spaces. We study the singularities of the evolute and evaluate the corresponding Thom polynomials to get numerical formulas. In particular, we verify Salmon's formulas in the case of curves and surfaces.