The study of singularities of mappings is essentially 'what happened to differential calculus' in the last few decades. There have been striking successes in classification problems, that is the determination of 'normal forms' of mappings under appropriate changes of variable, and in the area of 'universal unfoldings', that is placing a mapping in a finite-parameter family which in an appropriate sense contains 'all nearby mappings'. It has been possible to apply these and other results of singularity theory to a wide variety of problems.

In these lectures, which will be introductory in nature, I shall show how singularity theory has been applied in some, or possibly all, of the following:local symmetry of curves and surfaces, including 'medial representations' and affinely or projectively invariant symmetry; local classification of views of illuminated scenes; the higher order geometry of surfaces in 3-space (ridge curves, crest lines); caustics by reflexion in 2 and 3 dimensions.

The format of the lectures has not been fixed yet, but one possibility is that each week I shall try to give an overview of a topic in one lecture, and then go into some selective detail in the second lecture. For the most part, the lectures will concentrate on concrete and low-dimensional examples, and real rather than complex functions and mappings. It is intended that they will be suitable for a general audience with a good mathematical background.