Constructing Subalgebras in a Polynomial Algebra

This work is about the mathematical structure algebra, where in our case the elements consists of polynomials. Unlike Ideals which have been well studied, subalgebras are less so. First we present a different way of expressing these algebras using only the values of polynomials and their derivatives at certain points. Given this representation this thesis contains a new method of finding subalgebras, which are still roughly the same size as the original algebra. This could potentially be useful when trying to analyse and classify these fairly unknown algebras further. A secondary result of the thesis is the method of constructing a particular polynomial such that the ideal generated by this polynomial lies entirely inside our algebra.