In this talk, I will first present a recently developed uniform framework, known as Extended Galerkin (XG) method, for derivation and analysis of many different types of Galerkin methods, including conforming, nonconforming, discontinuous, mixed and virtual finite-element methods. I will then discuss the question (with some answers and some open problems) if it is possible to give a universal construction and analysis of convergent finite element methods for elliptic boundary value problems. Finally, I will discuss the function class given by deep neural networks and its relationship with finite element and applications to solution of partial differential equations.