Celtic art contains mysterious and fascinating aesthetic elements including complex knot work motifs. The problem is that creating and exploring these motifs require substantial human effort. One solution to this problem is to create a process that collaboratively uses interactive and procedural methods within a computer graphic environment. Spline models of Celtic knot work can be interactively modeled and used as input into procedural shaders. Procedural shaders are computer programs that describe surface, light, and volumetric appearances to a renderer. The control points of spline models can be used to drive shading procedures such as the coloring and displacement of surface meshes. The result of this thesis provides both an automated and interactive process that is capable of producing complex interlaced structures such as Celtic knot work within a three-dimensional environment.
The Celtic Knot and Cross

Celtic art is a form of art closely related to peoples that spoke the Celtic language, as well as peoples of uncertain languages that share many common features in their art with those above-mentioned. This form of art is hard to define, as it appears over a large span of time and in a wide geographical space, stretching from the British Isles to modern-day Romania, Hungary, Czech Republic and Croatia as well as Germany, Switzerland and France. Celtic Knot Generator. patterns may not mean as much as Celtic knots, but I hope one day I may be able to derive an algorithm of the random patterns that I draw. Finally, this project involves the investigation of different available construction methods and to describe, enhance and implement the method to construct a Celtic knot.

1.2 Literature Survey. Celtic knot, which origin is essentially unknown due to its prehistoric nature and the Celtic history of that period was only carried forward by oral tradition (O’Corrain, 1981). However, these Celtic artworks are closely associated with Knot theory, which is a relatively recent branch of algebraic topology originated in the 19th century. Around 1867, Lord Kelvin had in idea that atoms were knots of swirling vortices in the aether.