

# Constructing Multi-Sided Toric Patches

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Over the years there has been a greater need for more efficient forms of geometric modeling to keep up with the demand for computer aided geometric design (CAGD). In the past this modeling has oriented itself around three and four-sided Bezier patches, but circumstances arise when such limited geometric shapes cause holes in the design not traversable by such figures. Thus, designers would be required to fill in these holes manually at great expense. Alternative methods to the once manual operations are being developed and this talk should provide some enlightenment into the procedure and application of one such method.

A generalization of the customary bezier patches, toric patches provide a possibly more efficient method to this problem. Originating from a lattice polygon it will be shown how one can construct pentagonal and hexagonal toric surface patches in three-space. While these examples are limited, the possibility for a greater number of sides will be shown as well.