SimplyRhino
sales, training and support

Authorised T-Splines Trainer

T-Splines for Rhino
Outline & Objectives

Rhinoceros®
NURBS modeling for Windows

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Course outline

Course objectives

During the course of the training, participants will learn the following:

- Basic properties of T-spline surfaces.
- Multiple approaches for modeling with T-splines, including using an input of NURBS curves and surfaces, box modeling, and completely organic modeling.
- How to integrate T-splines with Rhino and NURBS in a production workflow.
- How to use all major T-Splines commands.

Assumptions

- It is not assumed that participants have used T-Splines before; however, as this is an accelerated course, prior experience or awareness is beneficial.
- It is assumed that participants are basically acquainted with Rhino (i.e. have completed Rhino Level I training).

Part I: Overview and introduction

Introduction to T-Splines

- Introducing T-spline surfaces
- Why model with T-Splines instead of just Rhino
- How T-Splines works together with Rhino

Part II: Modeling basics

Creating T-spline surfaces

- From primitives
- From curves
- Converting from NURBS/Meshes

Basic exercises for each of these creation types

Manipulating T-Splines

- Faces, edges, vertices
- Edit mode: Manipulator, hot keys
- Smooth mode/box mode

Basic exercise: Use the T-spline manipulator to move T-splines grips in smooth mode and box mode.

T-Splines modeling commands

- Adding/deleting detail to a T-spline
- Merging/welding T-spline surfaces

Basic exercises: Use a number of files to learn different ways to add/remove detail from T-spline surfaces and combine T-spline surfaces.

Exporting T-Splines

- To NURBS
- To a mesh

Part III: Exercises

Simple exercise: Modeling from curves (bathtub)

In this exercise, we will begin by creating a set of curves to define the contours of the bathtub. After lofting the curves to create a surface, we will then use a sequence of T-splines commands to add isolated detail, extrude a rounded bottom, add localized steps, apply symmetry, and match the T-spline surface with a trimmed NURBS.

Intermediate exercises: Depending on the time available, between one and three of the intermediate exercises will be completed at the training. If any exercise is not taught at the training, a step-by-step model will be provided to all participants.

Intermediate exercise: Completely organic modeling (table)

There are no exact dimensions on this organic table--it is purely an exercise in using T-Splines to create a flowing, organic form. This model introduces how to create voids and extrusions in a T-spline surface. Rhino commands are used at the end to create a flat, filleted top to the table.Intermediate: Box modeling (eyeglasses)


These eyeglasses are created in two parts: The rims are made with a box modeling method, while the earpieces are created from curves. Both parts are then smoothly merged and final details are added.

Intermediate: Modeling from curves (chair)

These chairs are created by combining surfaces created from curves and T-spline primitives.

Advanced exercise: Combining Rhino and T-Splines in a complex model (stadium)
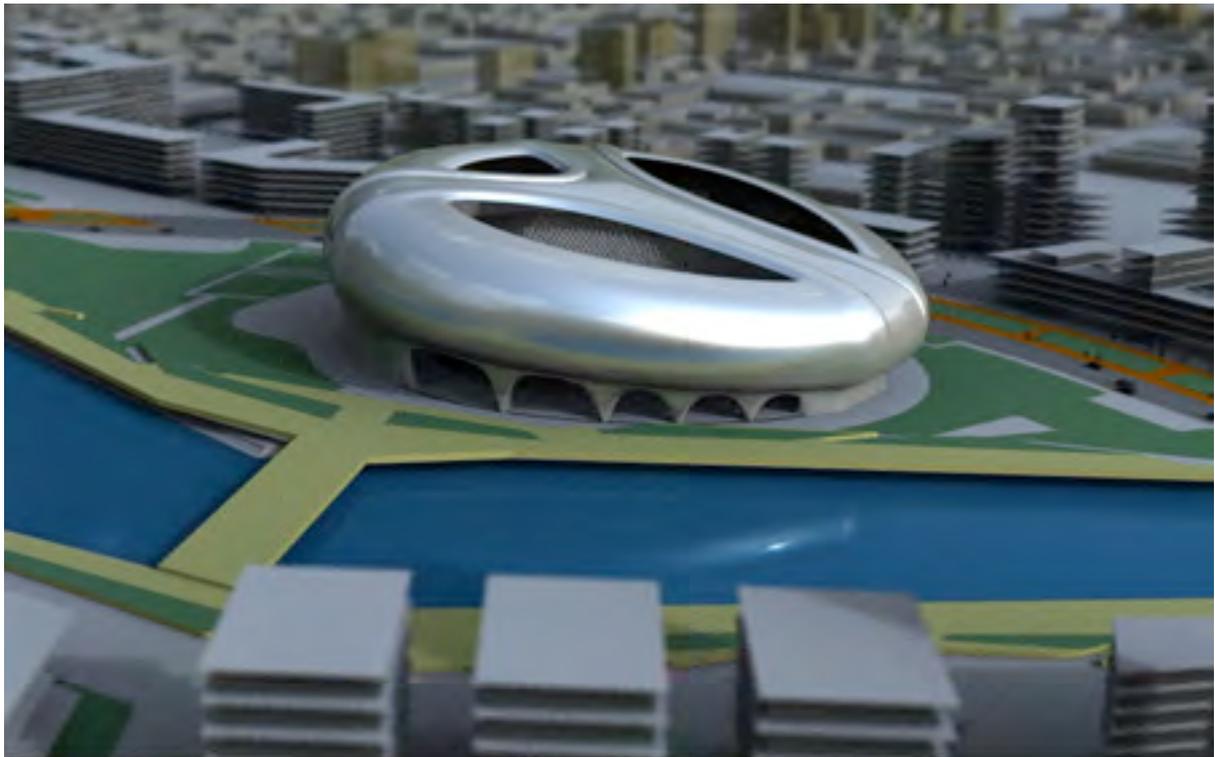
This stadium model incorporates local creasing, surface extrusions, symmetry, and more in a complex model that is surprisingly easy to create.

Part IV: Wrap-up topics

Modeling with precision

T-Splines excels at freeform, organic modeling. However, T-Splines for Rhino also has a number of commands to help your T-spline surface fit to precise parameters. We will review these commands here.

What to do if things go wrong

With NURBS modeling, it is important to control how different surfaces blend or interact with each other. Because T-spline surfaces are usually more complex than NURBS (often one T-spline surface is used in place of dozens of NURBS surfaces) it is most important to control how the various *interior* parts of the surface interact with each other when modeling with T-Splines.

We will examine some files created with T-Splines that have "gone wrong" and show how to fix them. Participants will learn a handful of key technical principles that can be commonly applied to "fix" their T-spline surface if something has gone wrong.