

Advanced Toolpath Editing in PowerMill 2019

MFG225409-L

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About the speaker

Christopher Marion



Christopher Marion is Product Specialist with the Advanced Manufacturing group of products that are offered by Autodesk. He is based out of the Windsor, Ontario, Canada office. He offers support, training and technical consultation in PowerMill, PowerShape, FeatureCAM & Fusion Production across North America.

His 20+ years of direct industry related experience in subtractive manufacturing has given him the ability to convey his knowledge to others during conversation about these products. Before coming to Autodesk, Christopher worked as a CAM programmer, a Designer (plastic injection molds and fixturing) and as a continuous improver in process planning and development.

In Christopher's free time, he enjoys spending time with his wife, son, daughter and dog Jasper. He loves to spend time on the ice coaching and playing hockey (He's Canadian, what did you expect?) as well as root for his favorite inept sports teams (Detroit Tigers, Lions and Red Wings).

Come visit Christopher during his time here at Autodesk University. He would love to sit and chat with you about the real benefits of what can potentially be offered as a solution for you and your company.

Assistants

Todd Steele – Autodesk Support Team Leader

Rob Walker – Autodesk Sr. Technical Marketing Manager

What is PowerMill?

PowerMill is a stand-alone CAM system that quickly produces both additive toolpaths, subtractive toolpaths and inspection probe paths against CAD models for all industry applications.

Some advantages of what PowerMill has to offer over some of its competitor's are:

- Quick calculation times on complex toolpath's
- High reliability to generate safe, trustworthy toolpath's
- Comprehensive finishing strategies for all industry applications
- Customizable to the user needs
- Ability to automate through user defined macro's and plugins
- Powerful 5 axis programming options and control
- Flexible toolpath editing and optimization



Lab Overview

In this hands on lab, we will go through PowerMill's ability to quickly modify and change pre-generated toolpaths for optimization by using some of PowerMill's editing tools.

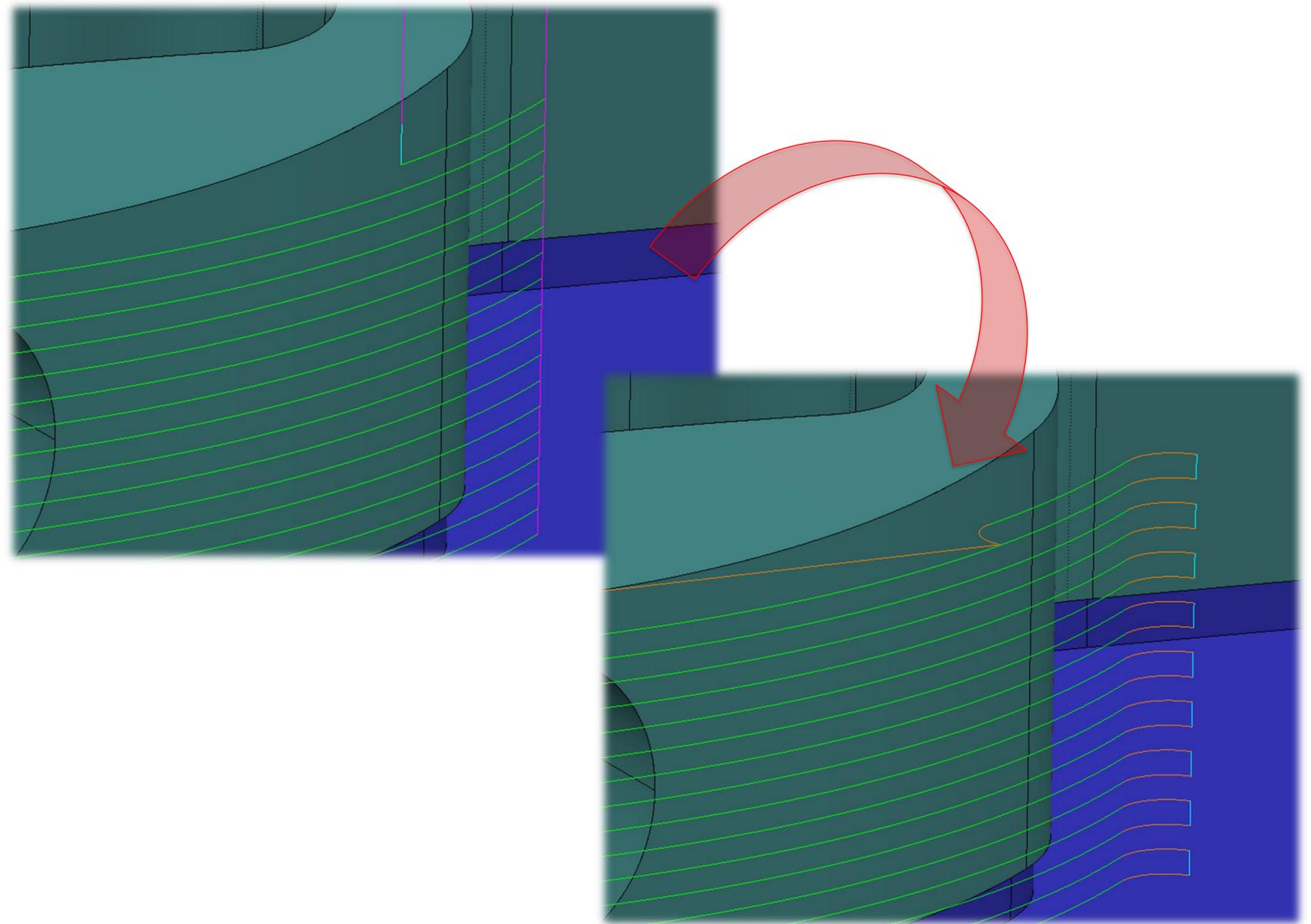
These changes could be something minor like:

- A feedrate change
- Lead in/lead out movements

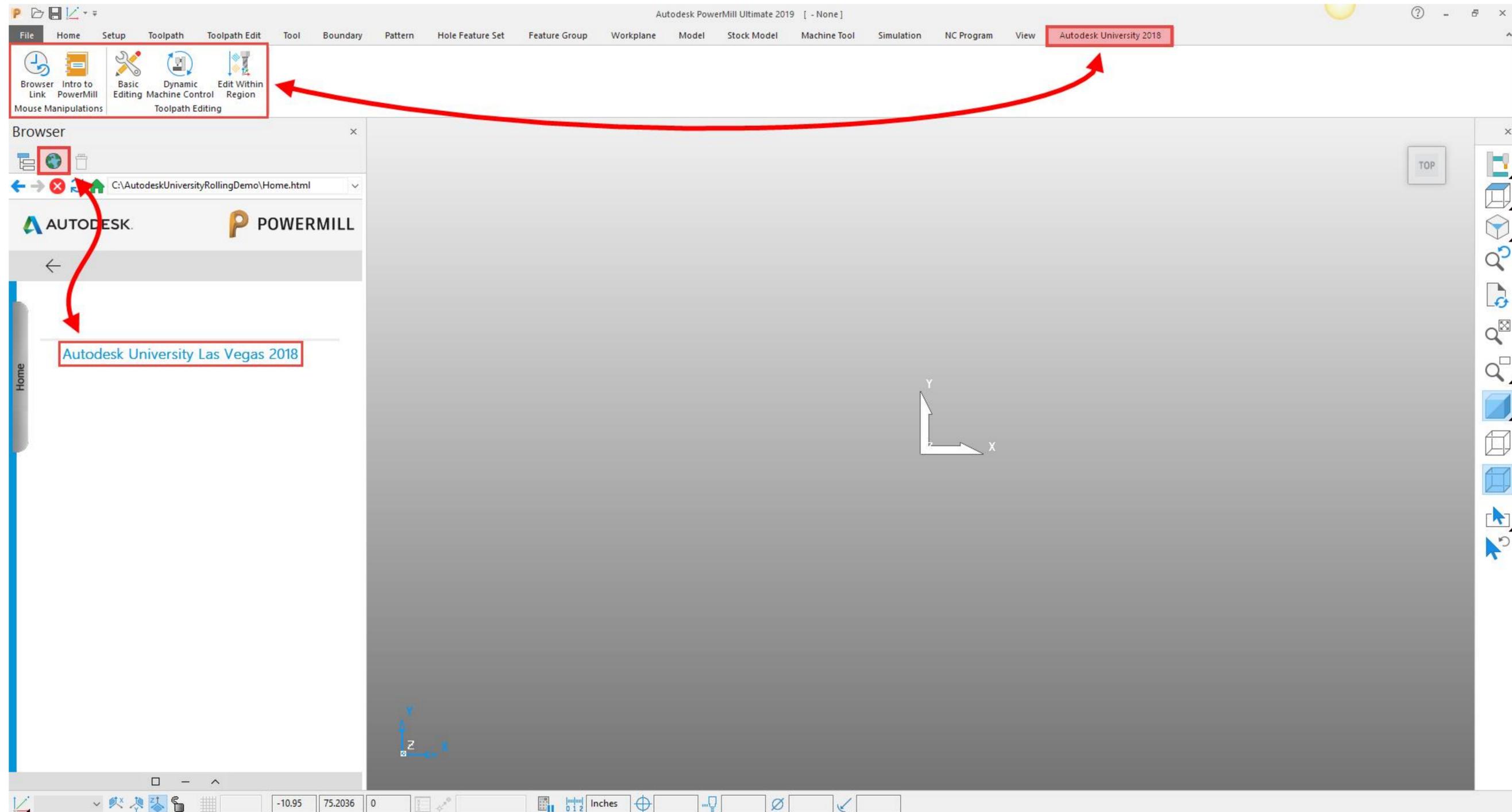
or

More complex changes like:

- Fixing machine tool collisions
- Modifying tool axis behavior



Accessing the Lab Material



Getting Started

If you are new to using PowerMill, the biggest hurdle is getting familiar with navigating the user interface and using the mouse to manipulate the model. Lets take five minutes here to get familiar:

The User Interface:

- Ribbon style layout made up of **Tabs** and **Groups**
- **Explorer** on the left hand side containing folder branches
- Viewing options on the right side

Mouse Control:

- Center mouse button allows free rotation
- Right mouse button pops up user menu's
- Left mouse button is used for entity selection

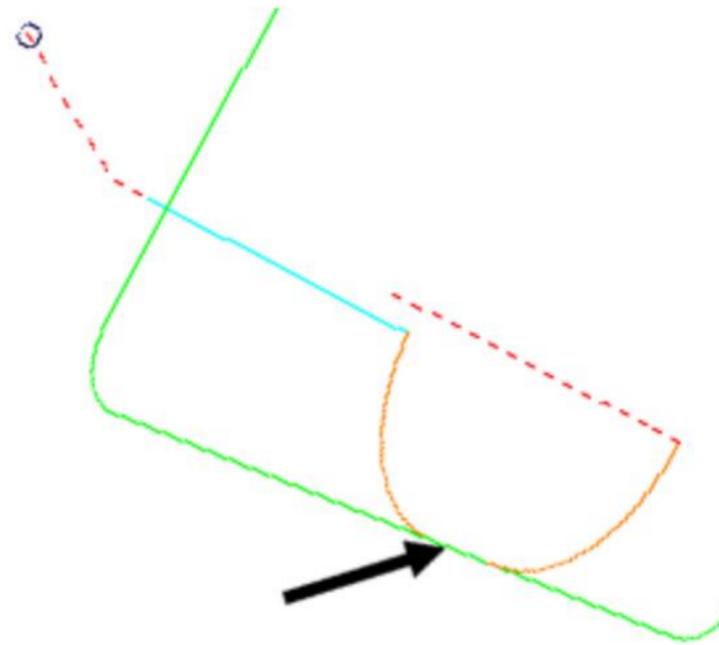


Session 1 – Basic & Intermediate Editing

The first session of the lab will go through some of the more basic editing options that are available to the user and we will finish up with some of the more intermediate functions.

A few samples are:

- Adding ramp moves
- Editing speeds and feeds
- Changing lead in/out behavior
- Reordering
- Transformation tools
- Limiting options



Session 2 – Dynamic Machine Control

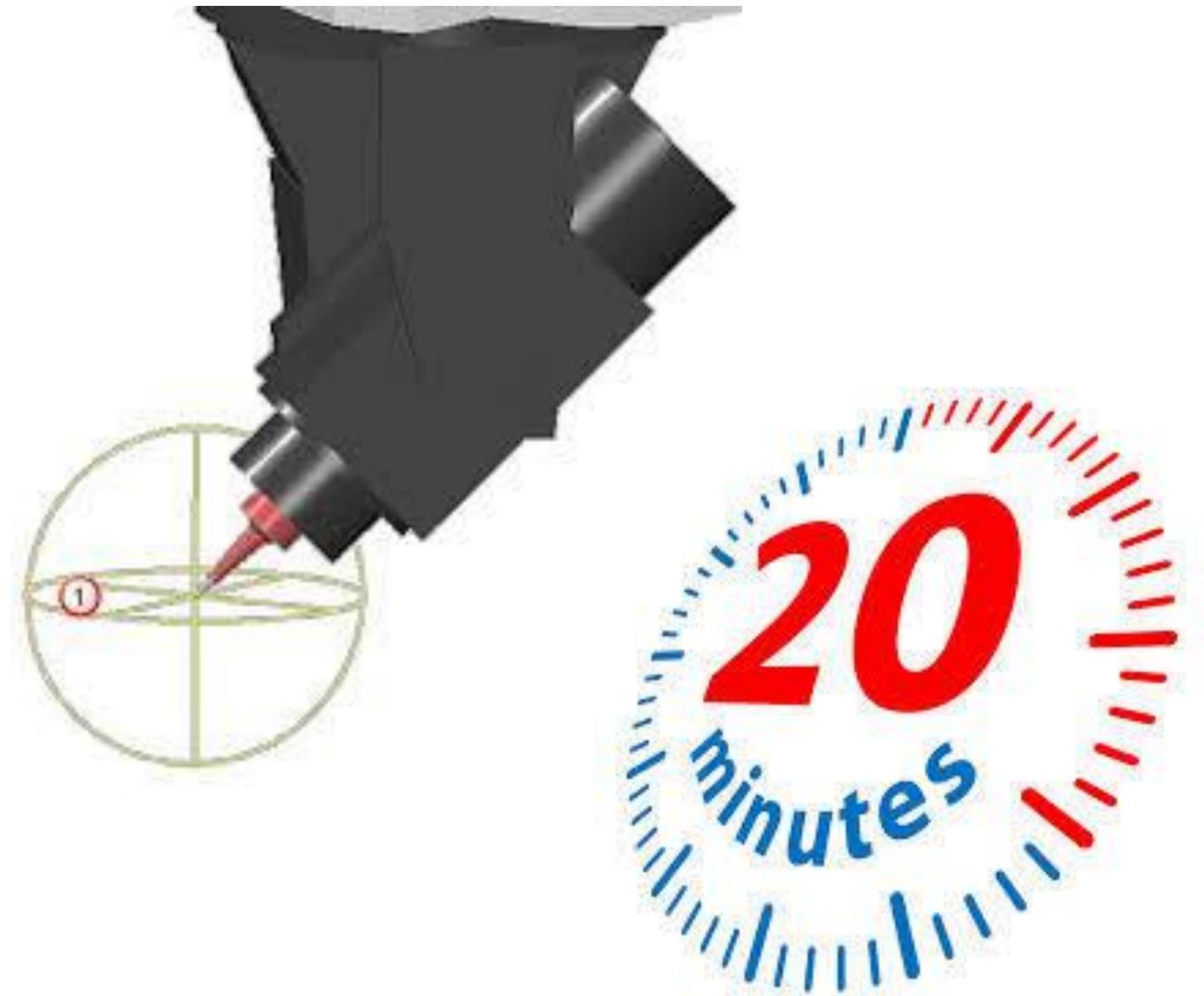
In this session, we will look at how PowerMill allows the user to check if a toolpath is safe by using verification tools and full machine simulation.

Verification:

- Quickly check the tool assembly against the model
- Swap and replace tools
- Remove unwanted segments

Dynamic Machine Control:

- Run full machine simulation
- Use the simulator to correct problematic toolpaths
- Use the simulator to preplan for the next toolpath

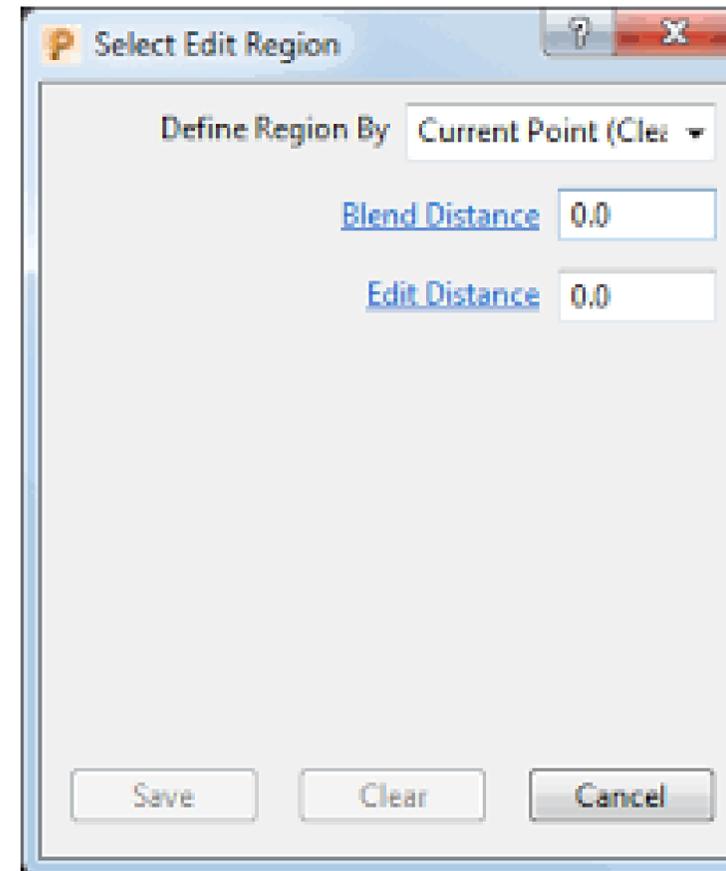


Session 3 – Edit Within Region

Let's go through using a tool that allows us to modify the behavior of the tool axis on the machine tool.

Edit Within Region:

- Change the tool axis in particular areas
- Eliminate unwanted rotary movements
- Swap the table configuration



Questions or Comments





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