AUTODESK **UNIVERSITY** 2015

IM11002-R

The Interface of Inventor: Looking to the Future

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Learning Objectives

- Gain a better understanding of future technology innovations and how this can benefit you
- Discuss gaps in the current market of mechanical engineering products
- Envision future tools and workflows that could increase productivity using Inventor
- Influence change to the future of Inventor software's UI and impact the future of making things

Description

The purpose of this discussion is to help shape the future user experience of Inventor. We will discuss the potential impact of innovations in design and technologies. You will have a chance to impact change that would increase productivity within Inventor workflows. Detail problems in current product offerings and discuss how new technologies and designs could help. We will also discuss how tablets and other modern devices and technologies could impact the future of making things within Inventor software. Come willing to participate in this collaborative discussion. How will you and other users be involved in influencing the future interface of Inventor software?

Your AU Experts

Jason Hetu *graduated with a BFA in digital art and multimedia design from the University of Oregon in 2007. In 2008 Jason joined GarageGames to design 3D tools for indie game developers. In 2010 he joined Disney Interactive where he held patents for mobile touch interface design. Jason began at Autodesk, Inc., in February 2015 and has been working on the future user interface for Inventor software. His broad experience and game-industry background brings a fresh and unique perspective to the Inventor User Experience Design Team.*

Introduction

Looking to the Future

We Believe in a world where you can focus on designing product without the design tools getting in the way. Where the user experience should feel natural, intuitive, flowing, and responsive across all environments, with seamless integration of new technologies such as cloud, high resolution displays, mobile access, integrated collaboration, and augmented reality. We believe in providing enhanced flexibility to choose how best to interact, access, and share your designs using tools that foster innovation and remove limits to enhance your creative freedom, allowing you to easily explore, iterate, optimize and visualize designs. Your tools should support (not hinder) you throughout the design process, providing ongoing guidance and learning to help you improve your design productivity (whatever your skill level). The visual language should be cohesive, coherent, accessible, and crafted to directly communicate the meaning and purpose behind the tool operation. The modeling environment should be dynamic and evolve with you, remembering past action and intelligently predicting your future needs in a rich and engaging way. Modernizing the user interface is not just simply refactoring the color and size of icons; it is a philosophy to evolve the product to suit you by reducing visual complexity to deliver a rich, robust and engaging user experience.

The future of Inventor looks bright, and it's paramount [to Autodesk] that our users are given the opportunity to be directly involved in shaping that future. We would like to initiate what we hope, to be ongoing dialogue between you and the Inventor design team, in order to make the modernization of Inventor as valuable as possible. We would like your feedback and suggestions on what improvements could be made to the interface and workflows, to directly improve productivity and enrich your daily experience using Inventor. We would love to better understand what a 'great experience' really means to you…

Future Technology Innovations

High Resolution / High DPI Screens

New screens are much higher DPI than previous generations and will probably continue to get higher in the coming years. As software developers we need to support all these different resolutions and maintain the same usability and user experience no mater what screen you are using.

Scalable Vector Icons

As DPI for screens can vary greatly we need to provide icons that are able to adapt to the best size for your screen while maintain a high level of detail.

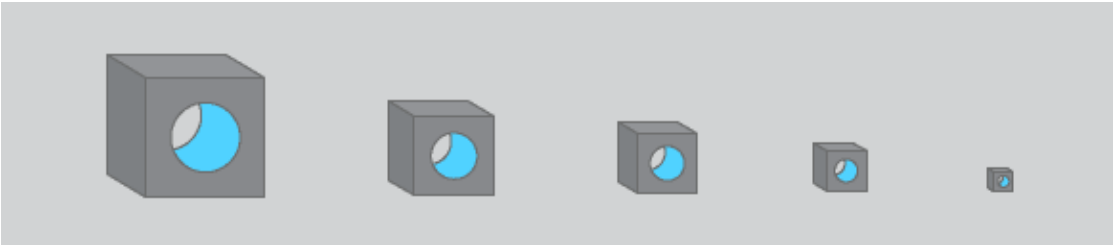

FIGURE 1: VECTOR ICON EXAMPLE

Responsive Interface Elements

Ensure that monitors with higher larger physical area are able to make use of that space in the most useful way possible. Show more commands that may not be able to be shown on smaller monitors. Give access to more productivity increasing tools. Similarly, with smaller screens UI elements should intelligently hide giving access to elements that you need when you need them. Removing clutter and un needed information to maximize the usable space for every screen.

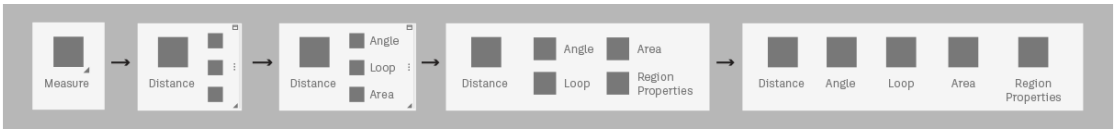

FIGURE 2: MEASURE RIBBON GROUP EXPANSION CONCEPT

Multi-Monitor Support

The user experience needs to extend seamlessly to other devices and monitors to enable you to be the most productive possible. Taking advantage of all available real-estate will enable customization of tool and window placement as well as give more space to visualize your designs.

Windows 10

New advancements in the windows operating system have enabled better support of different DPIs. The biggest change is the ability to seamlessly switch between mobile and desktop mode and intelligently present the correct interface elements base on your input whether it be touch, mouse, pen, or voice.

Touch Devices and Mobile

Tablets and touch devices have been growing quickly. With the addition of more powerful mobile touch workstations like the Surface Pro 4, more users will expect a more seamless experience where touch is integrated into the software and works as expected for each input type. This is already a part of the Windows 10 language and Inventor needs to evolve to leverage these new innovations. (Figure 3)

Google Glass / Holo lense

AR needs to be considered as part of future product design thinking as they are on the cutting edge of technology and show the potential future of design. (Figure 4)

FIGURE 3: MICROSOFT SURFACE PRO 4

FIGURE 4: MICROSOFT HOLO LENS

Productivity, Tools, and Workflows

Seemless Modeling

Constant switching of context within your workflow can reduce your productivity. How can we streamline the process and reduce context switching within Inventor?

Mini Tool Bar VS Popup Tool Window?

The Mini Tool Bar was first introduced in order to reduce screen space used and give more in context editing where your mouse is. Although it solved some issues it added some other concerns, always in my way, more clicks, less information, can't do everything.

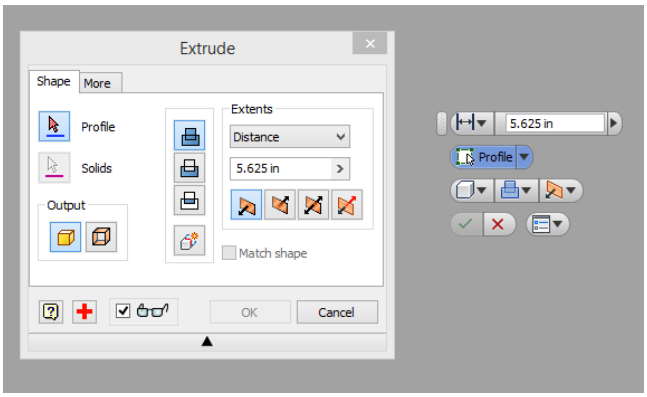

FIGURE 5: EXTRUDE COMMAND - MINI TOOL BAR AND POPUP TOOL WINDOW

OR Property Panel?

Would replacing MTB and Tool Window with a Property Panel solve the issues?

Find What I Need When I Need It

Search, whether it be your model browser hierarchy, tool properties, ribbon commands, settings, or files. How would you expect this to work, cull content, highlight content?

Data Management

Integrated data management that combined local, server, Vault, and A360 content.
Reduced dependency on project files.
Detailed view, Search iProperties, edit iProperties.
What is most important to you for Data Management?

Notify Don't Prompt

Modal prompts get in the way. It would be nice if I was able to be notified and not blocked from interacting with my model. This is another area that forces a context switch. Can smart notifications that default to actions help alleviate some of these issues?

Context Menus

Context menus are great in that they allow you to interact with your current content and are close to your mouse saving time. Would having access to more commands be valuable? Placement consistency, Hot keys, and larger hit area are some others. What other improvements could be made to make these most useful in your workflows?

Visual Designs

Icon Styles

Multi colored like vs deliberate color used for specific elements to call attention.

FIGURE 6: AUTODESK MAYA 2016 ICONS W/DELIBERATE COLORS

Colors

Dark vs Light colored UI, options and customizations.
Transparent / Semi-transparent / Opaque (Figure 7)
Color vs Gray

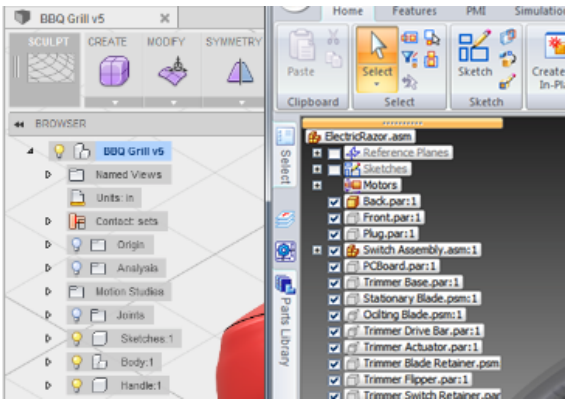

FIGURE 7: (LEFT) AUTODESK FUSION 360 (RIGHT) SOLID EDGE

Get Involved

Influence designs and concepts

Leverage the Inventor beta forum to get updates on the project. The forum will discuss the future of Inventor through innovations in design and new technologies, giving you the chance to impact positive change and help drive enhanced productivity within Inventor. We will discuss things you like, and things you'd like to improve, as well as your experiences with other CAD products. We really look forward to your opinion and insight, as together we define the future direction of Inventor UI…

https://beta.autodesk.com/
Click - Inventor > UI Modernization

Direct Link once you have signed up for an account:
Inventor UI Modernization Beta Forum