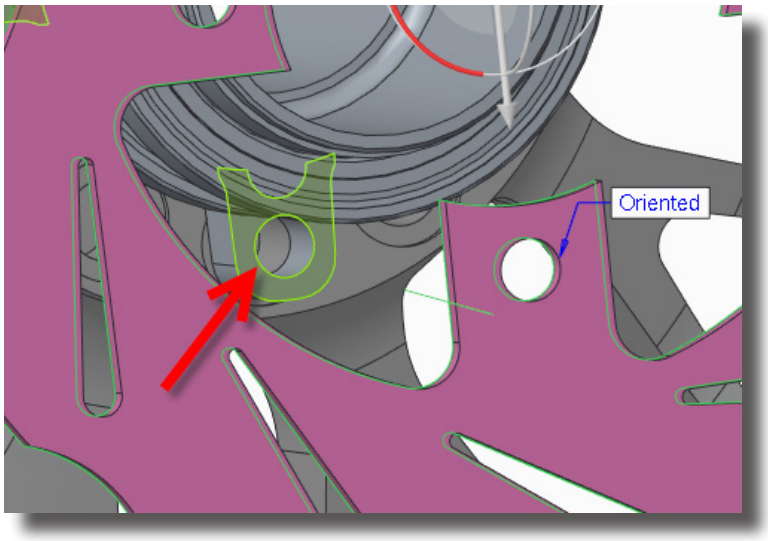
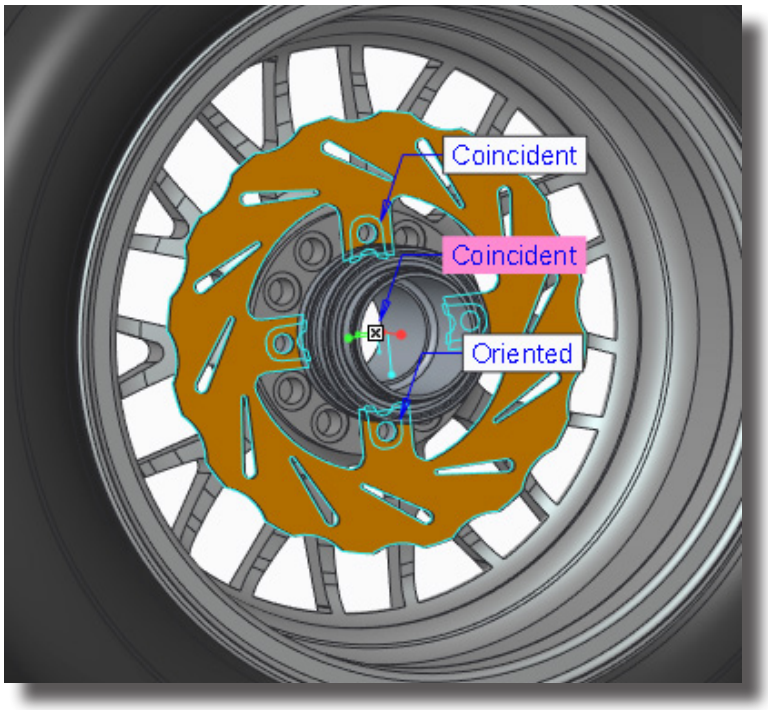
9. **RMB *tap*** to prehighlight the back of the rotor surface**. LMB** select

10. **LMB** select the top surface of the lower spindle bolt holt as shown



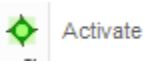
Your assembled Solidworks © rotor part should look as shown



11. **MMB** to complete the assembly feature

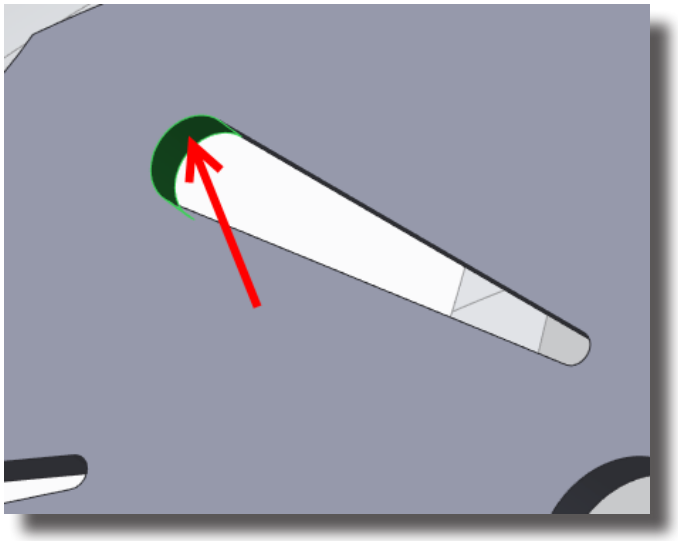
Notice the native Solidworks © part in the model tree and its associated icon. 

12. From the graphics toolbar **LMB** select view orientation  **FMX_Zoom**

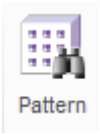
13. From the model tree **RMB** select **Brake__Rotor_SW.sldprt** , **Activate** 

14. From the ribbon toolbar **LMB** select the **Flexible Modeling** tab

15. **LMB** select the larger curved surface of the top vented cut



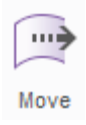
16. From the flexible modeling dashboard **LMB** select **Cut** 

17. **LMB** select **Pattern Recognition** 

18. **MMB** to complete the pattern recognition

19. **LMB** select the same curved surface of the top vent cut.

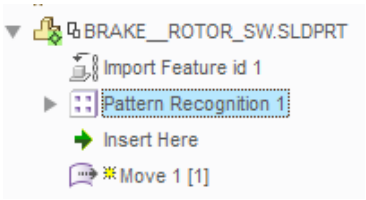
20. From the flexible modeling dashboard **LMB** select **Cut** 

21. **LMB** select **Move** 

22. Read the prompt regarding changes made to non-Creo data. Select **OK**

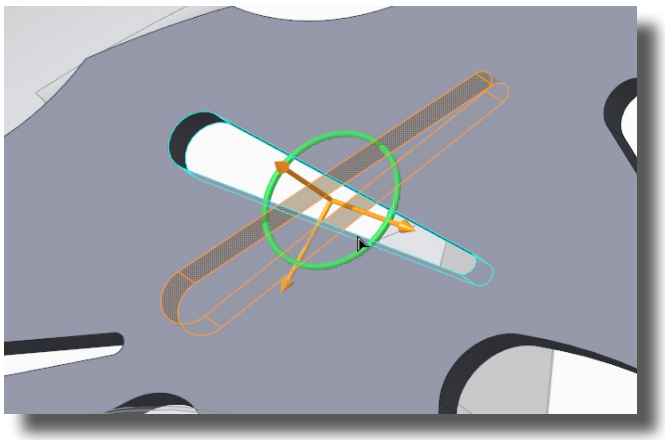
23. From the model tree expand **Brake__Rotor_SW.sldprt**

24. From the dashboard **LMB** select the **Options** group dropdown and select the **Pattern/ Symmetry/Mirror** selection box to activate it

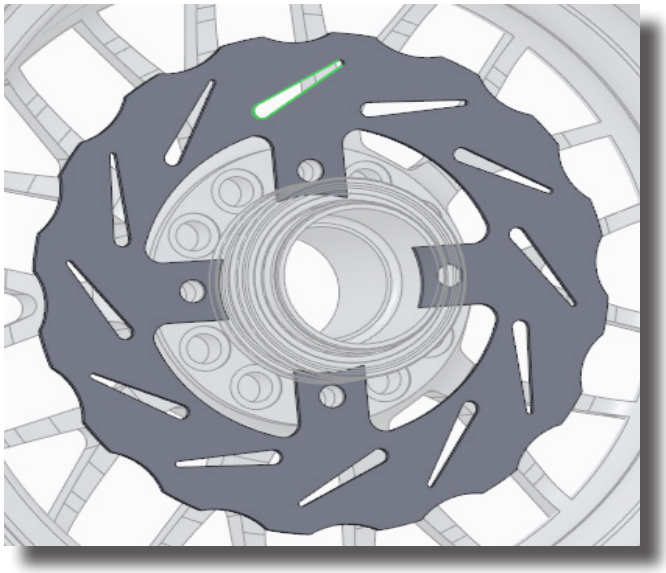
25. From the model tree **LMB** select the **Pattern Recognition 1** 

26. **LMB** select the **Options** group to close the dropdown window

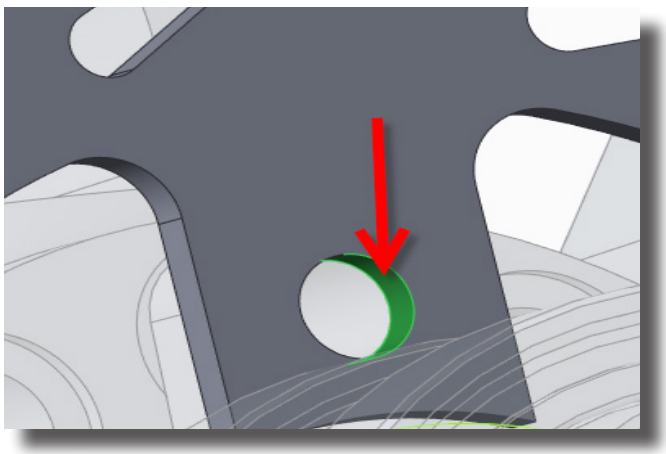
27. **LMB** select and drag the 3D dragger ring parallel to the rotor surface so the cut feature is in the opposite direction as shown



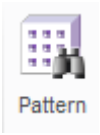
28. **MMB** to complete the feature



29. Zoom in on the upper mounting tab of the rotor part. **LMB** select the cylindrical surface of the hole as shown



30. From the freestyle tab of the ribbon toolbar **LMB** select **Cut** 

31. **LMB** select **Pattern Recognition** 

32. **MMB** to complete the pattern recognition

33. **CTRL+A** to activate **LF_CORNER**.asm

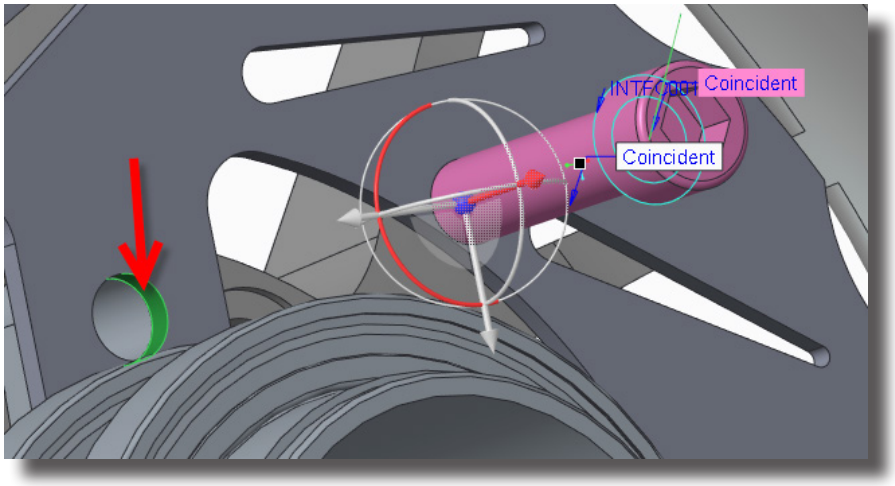
34. **LMB** select the **Model** tab in the ribbon toolbar

35. **LMB** select **Assemble** 

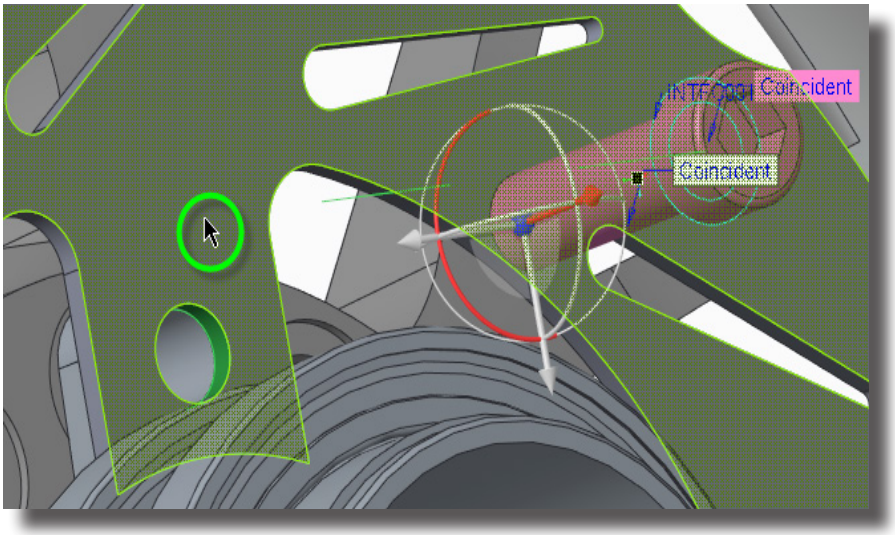
36. In the top right search dialog box type "**Hex**"

37. **LMB** select **hexsockscrew-3_8.prt, Open**

38. **LMB** select the cylindrical surface of the upper mounting tab hole on the rotor part



39. **LMB** select the top surface of the upper mounting tab on the rotor part as shown



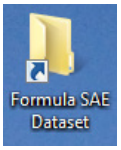
40. **MMB** to complete the hex screw placement

41. From the model tree **RMB** select **Hexsockscrew-3_8.prt, Pattern**

42. **MMB** to complete the pattern

You are now going to simulate an update to the rotor design by replacing the original part with an updated version in the file directory.

43. From the top right of the Creo user interface **LMB** select **Minimize**

44. **LMB double click** the **Formula SAE Dataset** folder on the desktop 

45. **LMB double click** the **SolidWorksUpdate** folder. **RMB** on the **Brake_Rotor_SW.sldprt** file and select **Copy**

46. Use the back button  to navigate back to the **Formula SAE** folder

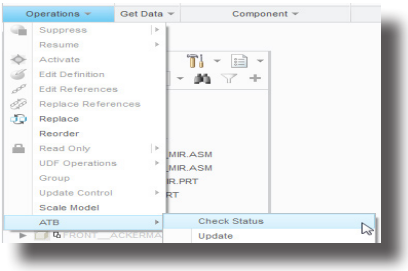
47. **RMB** and select **Paste**

48. Select **Copy and Replace** from the copy file window.

49. From the Windows taskbar **Maximize** the **LF_Corner.asm** window of PTC Creo Parametric

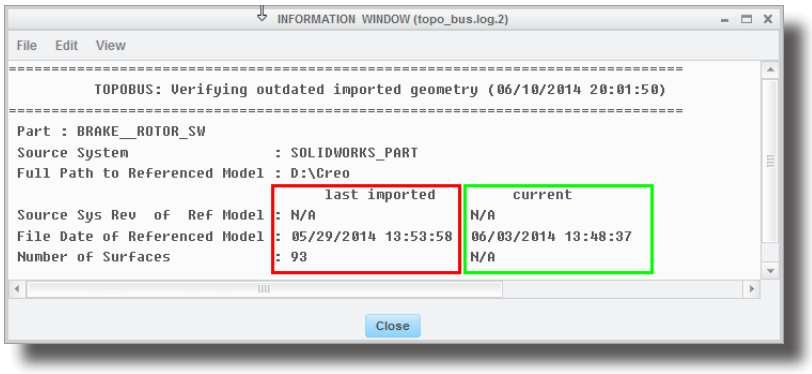
50. From the **Model** tab of the ribbon toolbar **LMB** select the **Operations** group

51. **LMB** select **ATB, Check Status**



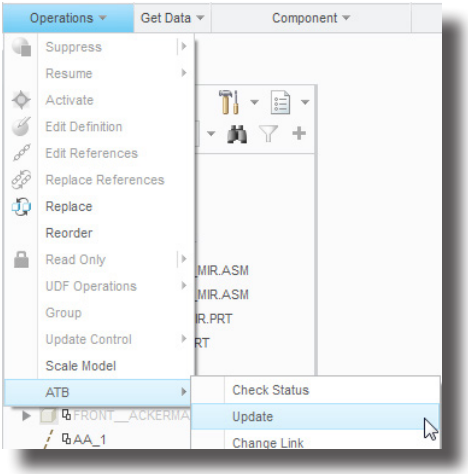
52. Read prompt to check all models. **LMB** select **OK**

53. Review the ATB report and close the report window



54. From the model tree expand **Brake_Rotor_SW.SLDPRT** and note the “out-of-date” icon next to **Import Feature id 1** 

55. From the ribbon toolbar **LMB** select the **Operations** group, **ATB, Update**



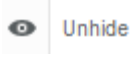
56. Read prompt to check all models. **LMB** select **OK**

Review the updated rotor part. Note that the new part as a smooth outer edge.

Also note the flexible modeling change to the vent cut is reapplied and the hex screw fasteners automatically reassembly themselves to the new part. (*WOW!)*

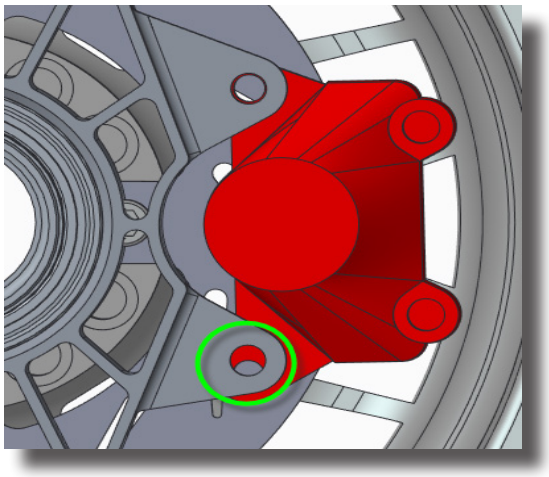
Let’s continue to explore how we can use new features of flexible modeling to modified 3rd party data from any CAD system

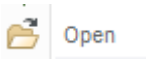
57. LMB select view orientation  **Back**

58. From the model tree **RMB** select the **Lf_Upright_IGES.prt** , **Unhide** 

59. From the model tree **RMB** select the **Lf_Caliper_NX.prt** , **Unhide** 

Notice the misalignment between mounting holes on the caliper and the upright support.

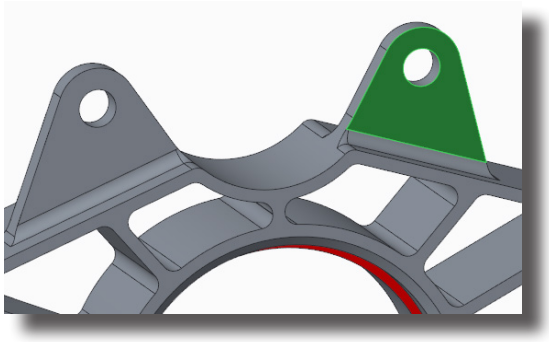


60. From the model tree **RMB** select **Lf_Upright_IGES.prt**, **Open** 

61. **LMB** select view orientation  **Modeling**

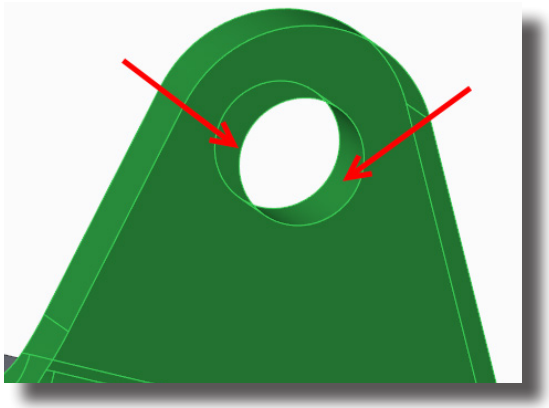
62. From the ribbon toolbar **LMB** select the **Flexible Modeling** tab

63. **LMB** select the front face on right tab as shown

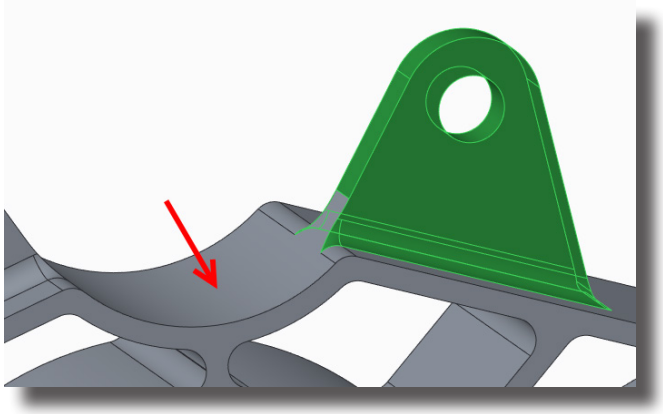


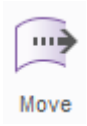
64. From the dashboard **LMB** select **Boss**

65. Hold **CTRL** and **LMB** select both halves of the hole surfaces

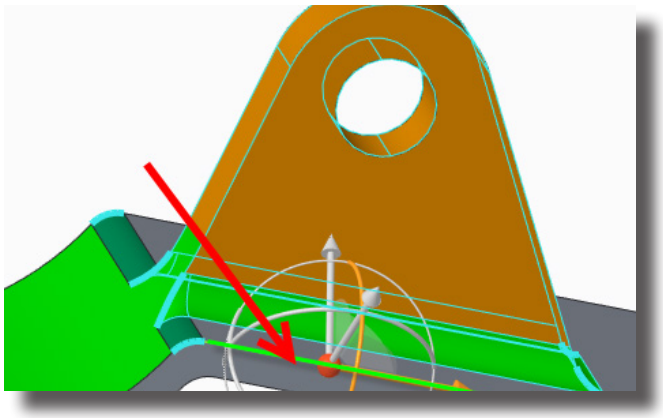


66. Continue to hold **CTRL** and **LMB** deselect the large, curved surface as shown

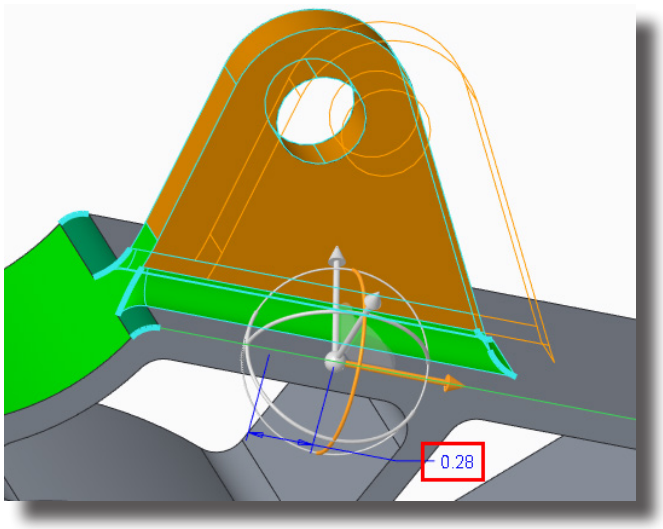


67. From the dashboard **LMB** select **Move** 

68. **LMB** select the front edge of part as shown



69. **LMB** select and drag the orange arrow right until a value of **0.28**. *(You can directly enter the value by clicking on the dimension)*



Notice the wireframe preview, not a fully shaded preview. This is due to the round geometry on the left side being invalid. Let's add some intelligence to address this issue