Figure 1. Adidas Pro Model 2010, my inspiration for producing Adidas Suave 1, I bought the Pro Model in 2010 and used it until late April 2013. In my opinion, the grip the Pro Model provides is less than what I expected.

I picked basketball shoes as my Solidworks project because I love to play basketball. Sometimes, I slipped or felt uncomfortable with my basketball shoes when I wore them during games, not seldom because of how the shoes were designed. Occasionally, I wonder what if I have the ability to design basketball shoes just the way I see them as ideal, so I immediately jumped to the conclusion of making one when my instructore, Dr. Liz, announced this project. When Dr. Liz, gave me a heads-up that shoe is a challenging object to create in Solidworks, it encouraged me even more to try to create a basketball shoe model in Solidworks.

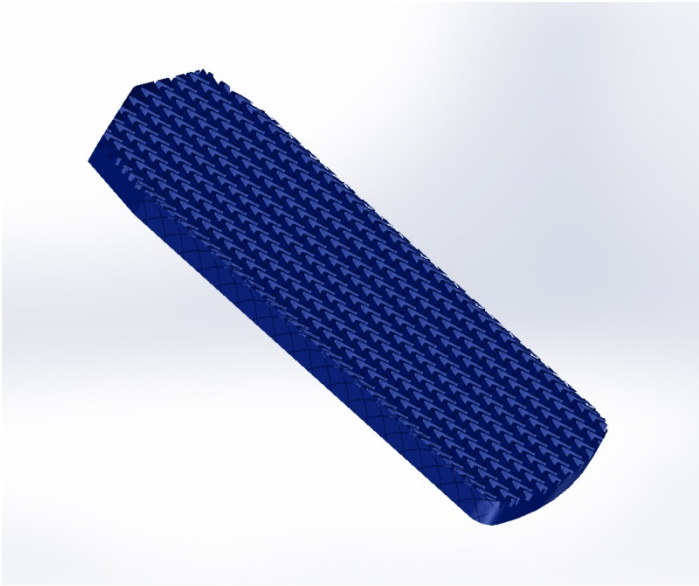


Figure 2. The shoe base with deeper grooves to increase grip. I also chose to give a blue color touch so that it is more “Penn State”.

So, I created a model in which I will have better grip by using more grooves. I sketched a sin function with .02 inches depth on the plane and fill pattern for the whole shoe base as its parameter. I tapered it by around 5 degrees inwards so that as a user, I know that I should start thinking of buying a new one when the grooves starts to decrease. I also put $y=x^2$ function along the side of the shoe base so that it has additional aesthetic value. The top part though was nothing spectacular, I created 6 different planes across the front plane and lofted the shoe body and tongue all the way from front to rear to get the desired curvatures of the whole shoe.

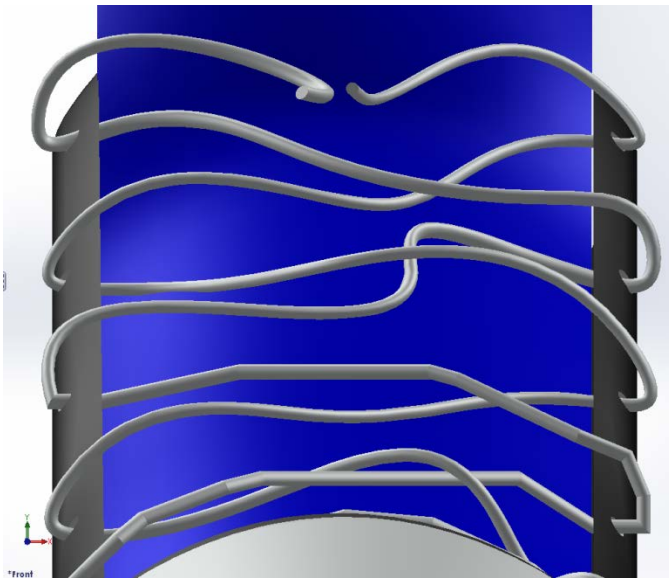


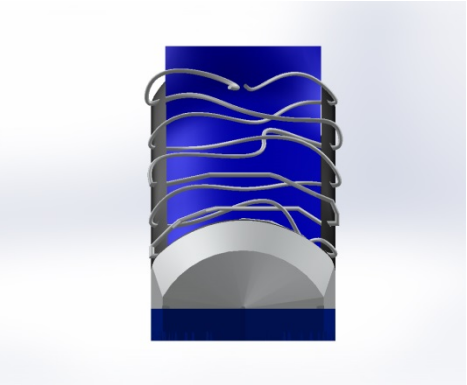
Figure 3. The shoe lace made me to learn 3D sketching in CAD and spline sketching. I did a simple sweep with a .04 inch diameter circle to create the tube texture.

In the process of making one, I found creating the shoe lace as the hardest part of the project. It seems that Solidworks is not the best program to use for creating flexible object such as shoe lace that go across XYZ dimension. In order to model the shoe lace, I used splines in a 3D sketch by constantly switch between XY-XZ-YZ plane in order to acquire the desired curvatures. The shoe lace ended up with some rough corners that I just can not get rid of. Everytime I tried to get rid of these rough corners, the sweep that I embedded failed to be created because topological failures will occur in which unfortunately I do not know why.

Lastly, if I were to be given more time to spend for this project, I would like to add more decorations on the body part of the shoe. The shoe looks less appealing with current decals. I am thinking of adding more decals over the rear side of the shoe where it is currently empty, and maybe some tapered holes by the side of the ankle just like the original Adidas Pro Model was designed. I would also like to smoothen the shoe lace that was sporadically set over the shoe in addition to giving more decals to the shoe.

In doing this project, I learned how to visualize the design of models and interpret them accordingly in order to recreate the model in Solidworks. It was a really fun experience, everything went better than I expected it would be, though I spent hours on the project, it was worth every second. Personally, CAD seems to be an excellent visualization and design tool. CAD provides tutorials that are crucial for beginners like me to explore my options in designing. The tutorials, along with Dr. Liz and Kristen (my instructors in EDSGN 100), not to forget my classmates, helped me in interpreting what I see to the program. CAD, though, may need to provide more explanation when it is trying to explain the errors that a user has made. I touched this point briefly before when I was trying to construct the shoe lace. I just do not understand what does CAD means by topological failure, maybe if CAD can provide a link clickable providing examples of failures every time a user made any failure, that would be excellent.

Comparison Table

Adidas Pro Model 2010	Adidas Suave 1
	

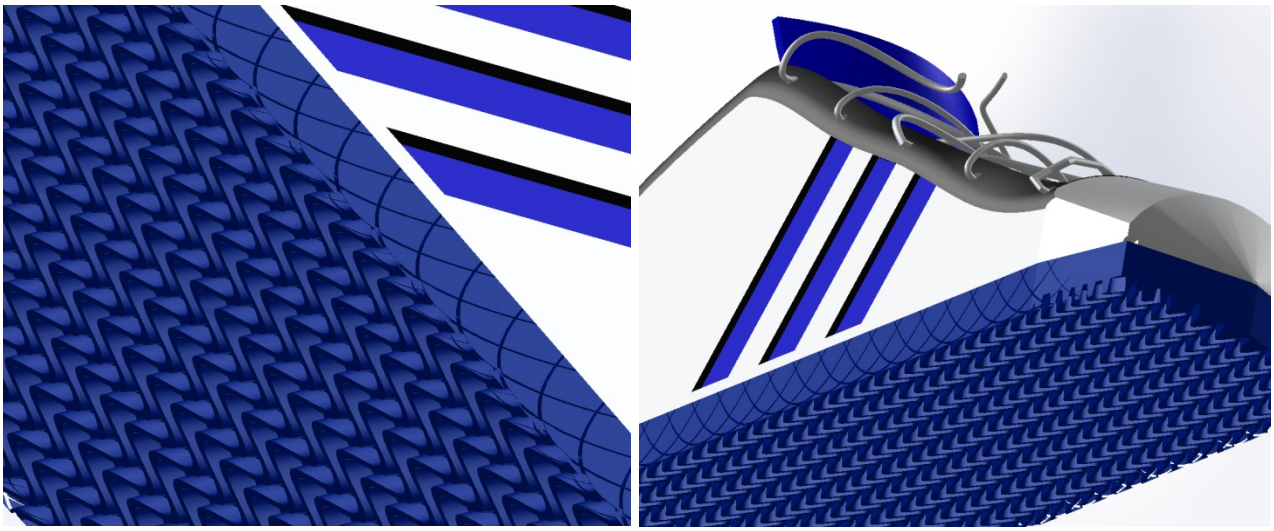


Figure 3 & 4. A closer look to the shoe base that I designed, isn't she lovely? ☺
Really love those curvy sole and classy side grooves.

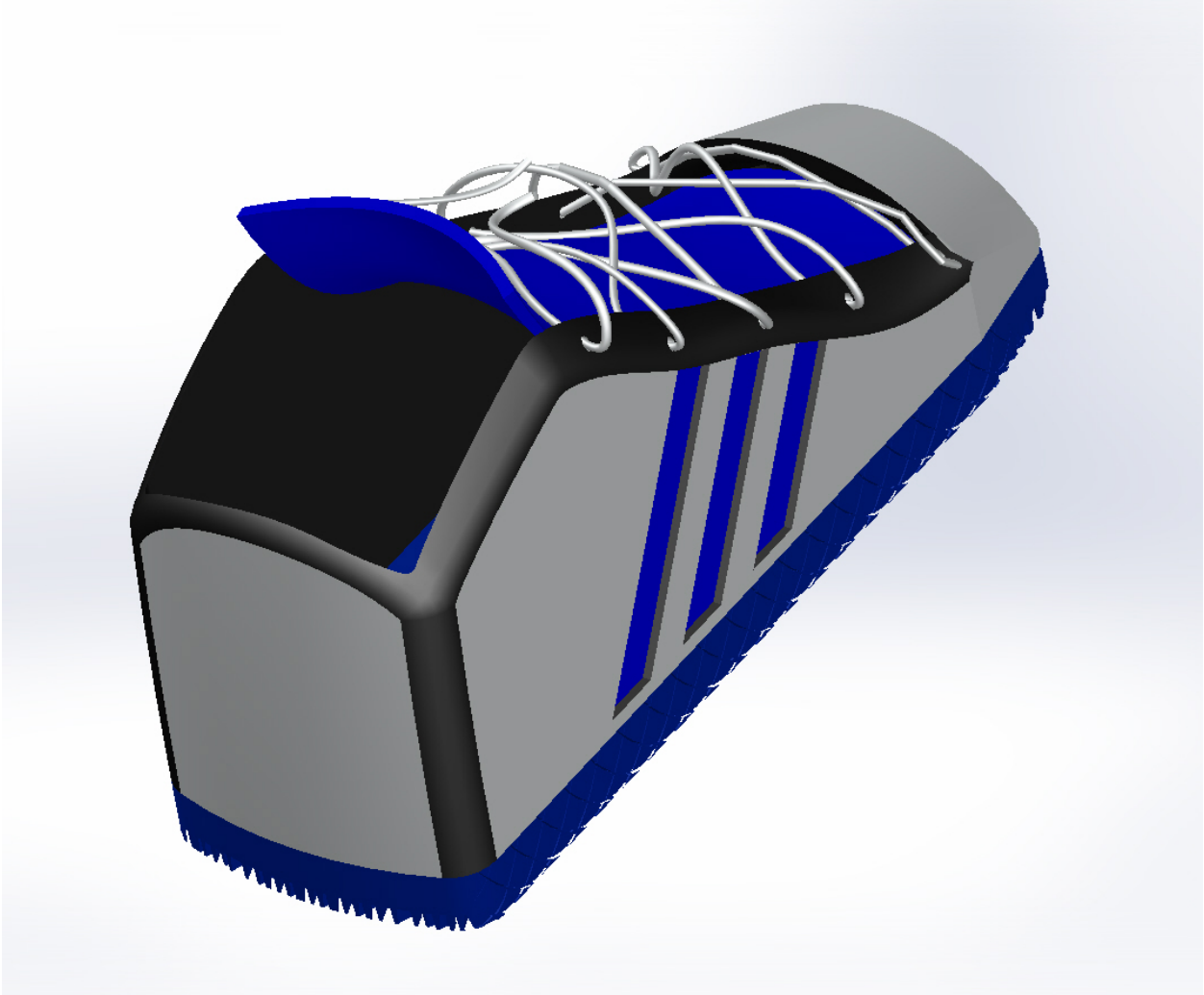


Figure 5. I chose to adopt the black color applied in the original Pro Model version for the inside. Smooth black curves on the side made it look dazzling. That's why I called it "Suave".