**Project Proposal**

1. **What is your team name? Who is on the team?**
   * Team Name: Shoes for Life
   * Team Member 1: Nam Gyu Kil
   * Team Member 2: Junhwan Kim
   * Team Member 3: Shuoqi Wang
   * Team Member 4: Mu-Ti Chung
2. **What is your project name?**
   * Online Fitting Room
3. **What is your project description (4-6 sentences)**
   * The project is a combination of object segmentation, structure from motion, and object stitching.
   * With the outbreak of COVID-19 and stay in home mandates, consumers' clothes and other wearables are accessible through online means. This project aims to help consumers virtually try on products to help facilitate the decision process. Our project will focus on shoes as it is a rigid structure which is much easier to implement than other types of clothes. The source of the data for the shoes will come from online shoe retailers such as Nike, Adidas, and others and must have multiple orientations of the shoe. Through object segmentation and structure from motion, a “3D representation” of the shoe will be calculated which then can be used to stitch to another photo of the consumer based on the orientation of their feet.
4. **What do you expect to be able to demonstrate for your project in the video?**
   * Input/ Output: Take a full-body photo of the user as an input, replace the shoes the customer wears with the shoes they are shopping for.
   * Implementation: Algorithm for replacing users’ shoes with arbitrary ones from the websites of shoe retailers. Step-by-step demonstration of each portion of the algorithm.
     1. Segmentation: Foreground/background segmentation of the shoes from online retail shops and image of users with shoes.
     2. Structure from motion: reconstruction of a 3D shoe model from multiview projections from the retailer website.
     3. Image stitching: side-by-side point correspondences
   * Extension: user (web) interface
5. **How is your project positively impactful to society?**
   * Social distancing (no need to go to store)
   * Reduce number of returned packages (environmental impact)
   * Bring convenience to people (shorten shopping time)
   * Give customers a better shopping experience
   * Promoting online economy