AI Personalized 3D Printing for Transcatheter Aortic Valve Replacement

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The engineering goal is to see if by taking a picture of an Evolut R valve, and then placing that image into artificial intelligence, and creating a file, if we could then change the size of an Evolut R valve to any size depending on what each specific patient needs. After uploading the image of an original Evolut R valve into an artificial intelligence, AI, website, we were able to create a file that could be loaded into a 3D printing system and printed. This means that the engineering goal was accomplished and we were able to expand the sizing of valves from a limited four sizes that were previously used, 23mm, 26mm, 29mm, 34mm. Thus, each patient experiences the personalized care and treatment that they deserve. This will help lower mortality rates and additional procedures by ensuring that no patient has a valve that is too big, which causes the need for a pacemaker due to the pressure of a valve too large pushing on the aorta, or too small, which leads to further complications and procedures because of the valve not being fully secured in place.

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