# Abstract

[App Name] is an app that is made to create, store, and share 360-degree images. Users can take a series of photos either with the app’s camera or import images into the app to stitch them together with the use of computer vision to create a 360-degree image. The images created in the app are stored on an internal database, from which users can access view their images and access other information regarding the image.

# Overview

* Why is the project interesting
  + We are interested in fields that will use these types of images in some capacity. We want to use this opportunity to understand how it would be used
* Why is it useful
  + Useful for immersive/interactive experiences
    - Can be used commercially in real estate, tourism
    - AR usages
  + Useful for 3d pipelines for games and VFX for matching lighting scenarios and creating accurate reflections
* Background information before preceding proposal
  + Computer vision?
  + Image stitching
* Other apps

Our project is to create an application that will create and store 360-degree images. Practically, 360-degree images are used in primarily two capacities: to create immersive/ interactive experiences (VR, AR, XR, etc.), and as reference in 3D pipelines (i.e., film visual effects, games, etc.) to recreate accurate lighting and reflections. As both team members of this team are interested in fields that involve the usage of such images, we decided to do this project to understand the technology behind it.

The app will have three core functionalities: taking raw pictures from the camera, stitching pictures together using computer vision image stitching algorithms found in libraries such as OpenCV and accessing those images and their data in the database. The use of computer vision in the context of image stitching is used for the purpose of detecting and matching features across a series of images for the purpose of organization to create a composite image.

While some android devices, like the later Google pixels may already have this feature (photosphere mode), most have to rely on other apps like the google Street View app whose support was discontinued earlier this year.

There are a variety of apps that achieve/have similar purpose, most prominent being Google Street View whose standalone application support was discontinued earlier this year. While some devices have this feature built into their camera apps such as the Google Pixels, most other apps that have been designed to do similar tasks utilize computer vision algorithms in order to stitch the images together.

With the slowly growing prevalence of extended reality applications, this number is sure to grow

# Exceeding functionality

* Photo editing capabilities
* Modify the image viewer to view the image within a 3d space

Features that would exceed the core functionality of the app that we would like to implement include adding basic image editing capabilities, and adding a feature to the image viewer to add a panorama view which allows the user to pan along through the image rather just viewing it statically. To implement these features is going to require us to do further research on implementing image editing capabilities, as well as how to create a panorama/360 image viewer inside of android.