







SLAM

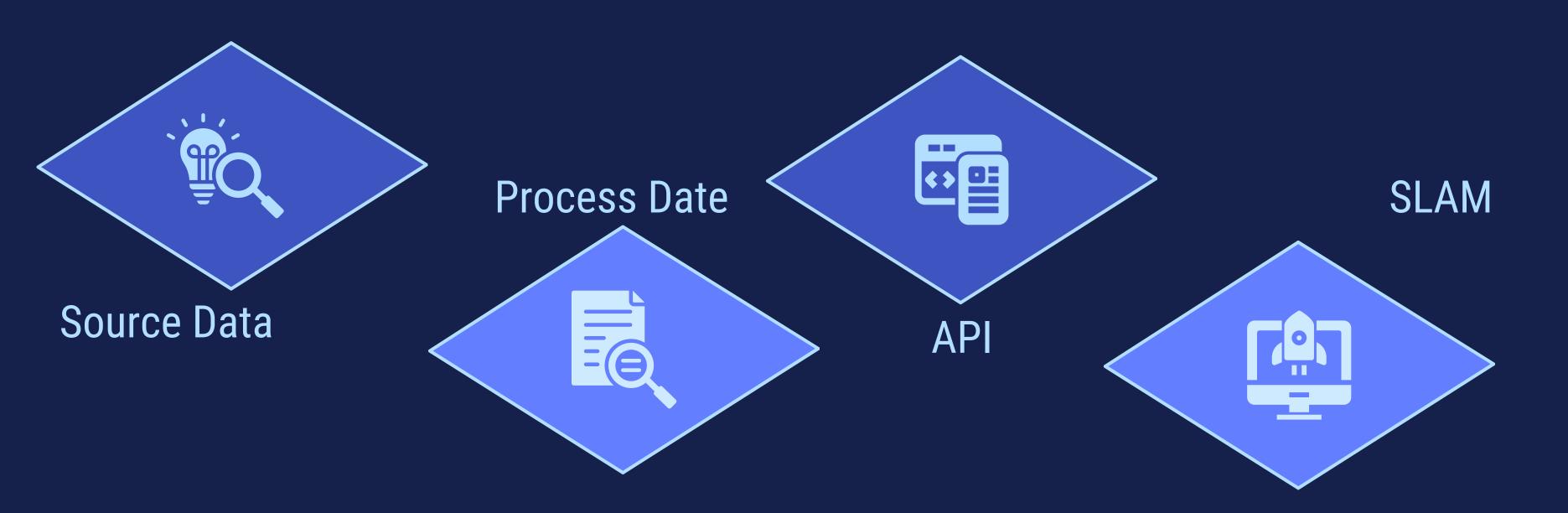
Real-time person mapping

This project uses Simultaneous Localization and Mapping (SLAM) to track and map people in real-time within a changing environment. By combining a stream of footage and machine learning, the system will identify and follow people as they move, updating the map continuously. This project can be applied to areas like indoor navigation, autonomous robots, and smart surveillance, with a focus on reliable human detection.



Project Overview





How we setup our enviroment

People detection is crucial for SLAM in dynamic environments because it ensures the map remains accurate by distinguishing between static objects and moving individuals. This capability allows SLAM to improve localization by tracking the system's position relative to both stationary and dynamic elements, enabling safe navigation and reducing the risk of collisions with people.

- We first created a pipeline to get our images
- Configured an object to specify the settings of the data stream
- Enable our RGB and depth streams
- Start the pipeline with our specific configuration

Finding our heads

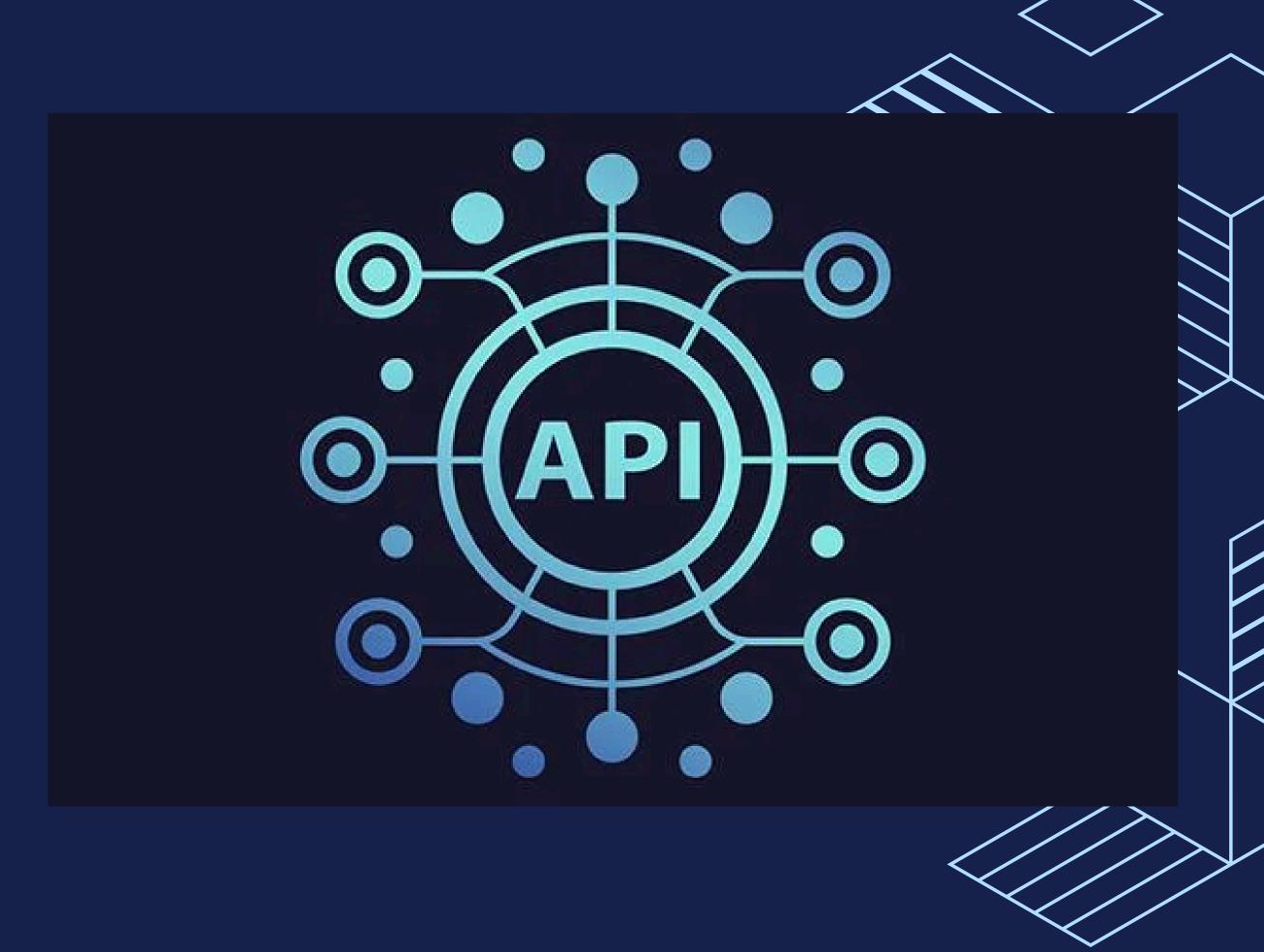
The code goes through each detection to find people based on confidence and class ID. If the detection is likely a person, it calculates the position and depth (distance from the camera) of the person. It then saves each person's depth and confidence in a list, sorts the list by depth to show the closest people first, and returns the list.





API Setup

Using an API connection, we will take output of the face detection and use it as the input into our SLAM model.





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