Hi I’m Michael, today I’m going to presents you with a topic related to hologram glasses.

Once I read Plato, I'm shocked by the Allegory of the cave. It's a thought of what reality is. (Plato)Imagine there's a group of people who are forced to live in a cave. The only scene they can see is the shadows on the wall which are projected from objects passing in behind them. Then their recognition is bounded by a wall and all the objects they know are 2D projections. (Plato end) This allegory is so close to today's society.

When we look back at the century of computing, we are fascinated by the invention of computers, smartphones, and the internet. (History of Computer) While interestingly, it's the first time when humanity was reduced to live in 2D space. Today, the majority of us spend most of our time looking and tapping at screens. For me, as an engineer and game lover, I find myself very limited. Monitors create a 2D world made of pixels for me to live in. But wait! Hold on a second. Is that what technology is supposed to be? Are we still human instead of a machine which operating those devices? The answer is definitely no! Technology should bring people, thoughts, and reality together, not separate them! Then there comes a technology I'm studying. It's called SLAM which is Simultaneous Localization and Mapping. This tech is wildly used at holograms, a typical example is Microsoft HoloLens.

Different from VR helmets which create an entirely virtual scene, HoloLens brings 3D holograms to the real world. This tech can be divided into 4 parts, camera, visual odometry, non-linear optimization, and mapping. The entire process is, the camera takes pictures at a certain rate, at the same time, visual odometry use sensors like gyroscope and accelerometer to record the movement such as rotation, move forward or backward. Then the photos and data from visual odometry are sent to a computing unit. This unit uses a certain algorithm to compare the difference between the pictures taken in order. It processes all those data to get a more accurate position estimation. The final step is completed by a holographic computer. The computer combines the surrounding record by the camera with the device's movement to construct a 3D map. Based on this map, the computer can project almost anything to the real world.

This is a revolution of humans interacting with technology and the world. As developers and engineers, we dream of simplified cause and effects. When double-clicking the icon, this is a cause. A window is opened, it's an effect. Now, this cause and effect are not limited by the mouse and monitors. It's all around you, you can use hand to stretch, rotate, and modifies the object you are designing by using your hands. This is not just a technology, it's a new kind of reality. For example, when we go home and sit on the sofa, we open the TV to watch the latest episode. Actually, we are just enjoying the time and space displayed by the screen. However, with the SLAM technology, you can go inside the scene, you can see dragons flying above. You turn around and see the dwarf's army is gathering on the hill westward. In the future, there will be no boundary no matter in developing, gaming, productivity, or communication. By this technology, we broke the two-dimensional limitations and use the entire digital power in our world. We look back at Plato's allegory, now we are no longer the people watching the shadows, we are closer to reality. The reality now is not just the real world without phones or computers, it a combination of real-world and digital power.