



# Seeing Small: **MOTION AMPLIFICATION**

## **DISCOVERY**



The world is full of phenomena we can't usually see. Science provides a lens into this unseen world.

From the microscope to the telescope, science allows us to look closer and peer farther. These tools provide insights beyond the normal reach of our five senses.

Research has led to a new means of heightening our perception: *motion amplification*. This technology enhances the magnitude of tiny motions, making unseen processes suddenly visible through computer sensing and enhancement.

For example, motion amplification can help us monitor a baby's breathing. The movement of a baby's chest rising and falling with each breath cannot normally be seen with the naked eye. Motion amplification technology can make them visible, allowing for easier diagnosis of potential problems. Click [here](#) to see a video about motion amplification.



## **INNOVATION**



How does motion amplification work? Specialized image processing software takes in raw video footage and examines how the colours of individual pixels change over time (evidence of tiny motions). Software amplifies colour variations to make them more visible. It's like a microscope that, instead of magnifying cells and other small objects, magnifies *motion*.

## **IMAGINATION**



Motion amplification is still in its infancy, but its potential applications are vast, from measuring a heartbeat to detecting structural weaknesses in buildings. How would you use it? What tiny motion would you amplify? What might we learn by using motion amplification?

