

## Reflection Journal – Lab 02: Image Processing Fundamentals

**Name:** Triet Le

**Course:** ITAI 1378

**Date:** 9/5/2025

One of the biggest surprises for me in this lab was realizing how different machines see images compared to us. For our eyes, an image is just colors and shapes, but for a computer, it's all numbers. I think it's amazing that something so simple, rows and columns of values, can turn into pictures that look real to us.

The operations we tried out, like adjusting brightness, sharpening, or blurring, made me think about the AI tools we looked at in class, like Nano Banana. At the end of the day, AI is still building on the same steps we did by hand; it just does them much faster and in bigger, smarter ways. It showed me that AI doesn't invent magic tricks; it just takes what we already know and pushes it further.

When I thought about real-world uses, game design popped into my head right away. Old games like Pac-Man were super blocky, but now we have games so detailed you can see wrinkles on a face or grains of sand. That all comes from improving image processing. Beyond games, I could see these techniques in things like photo editing apps, special effects in movies, or even medical scans where doctors need clear details.

For creativity, I liked mixing blurring and sharpening. It gave me totally different perspectives on the same picture, either soft and fuzzy, or sharp and detailed. It reminded me that playing with images can be as artistic as it is technical.

Going forward, I'm curious to dig deeper into sharpening. It feels like a small adjustment, but it really changes how we see details, which makes it powerful for things like photography or AI vision systems.

Overall, this lab changed how I look at images. Instead of just seeing "cool filters," I now understand the math that makes them possible. Traditional methods give us control but take more effort, while AI can speed things up, though sometimes it's harder to see what's going on behind the scenes. I think the best projects will combine both: let AI handle the heavy lifting, then fine-tune things ourselves to get the result we want.