VGU – CSE2022

Exercise 5 - Project (For Loop)

September 11, 2022

1. **Implement these functions**

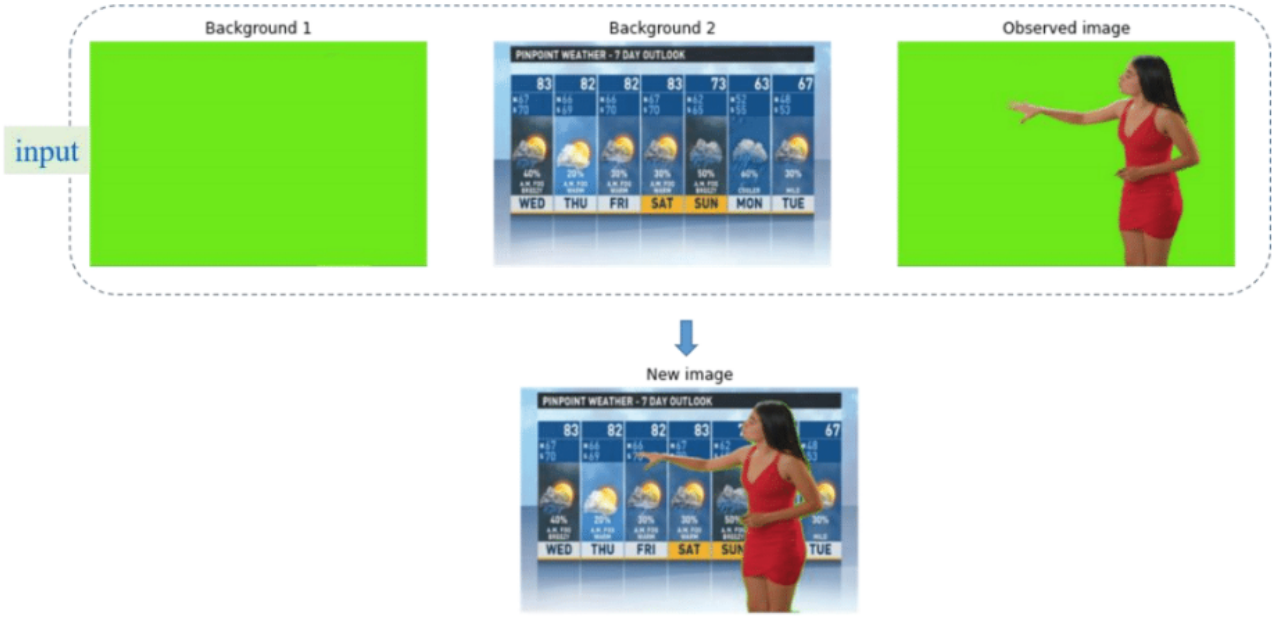
   (a) Given a function f(x): $f(x) = x^2 + 2x$

   (b) Derivative of the function: $f'(x) = 2x + 2$

   (c) Forward difference approximation: $f'(x) = \lim_{\Delta x \to 0} \frac{f(x+\Delta x) - f(x)}{\Delta x}$

   (d) Central difference approximation: $f'(x) = \lim_{\Delta x \to 0} \frac{f(x+\frac{\Delta x}{2}) - f(x-\frac{\Delta x}{2})}{\Delta x}$

2. **Write a function to performed background subtraction, as illustrated following**



- **Library to read an image:**
  https://github.com/nothings/stb/blob/master/stb_image.h
- **Library to write an image:**
  https://github.com/nothings/stb/blob/master/stb_image_write.h