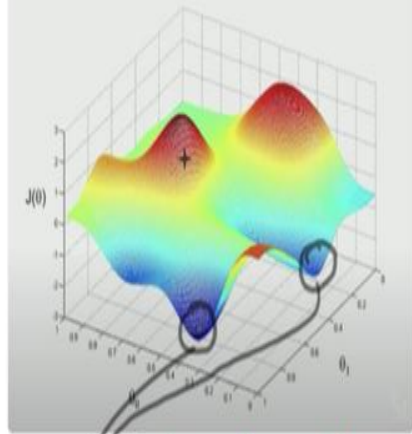


Gradient Descent



→ here θ_2 is not included to make a 3-D diagram

Lowest point

- Start at some point
- Take 360° look & figure out which direction baby step leads to lowest value
- Repeat

* Slope \Rightarrow Give rate of change
Derivative \Rightarrow Slope
- Derivative \Rightarrow -ve slope which means the rate of lowest descent.

$a = b$
 \hookrightarrow expression
 $a := a + 1$
 \hookrightarrow assignment

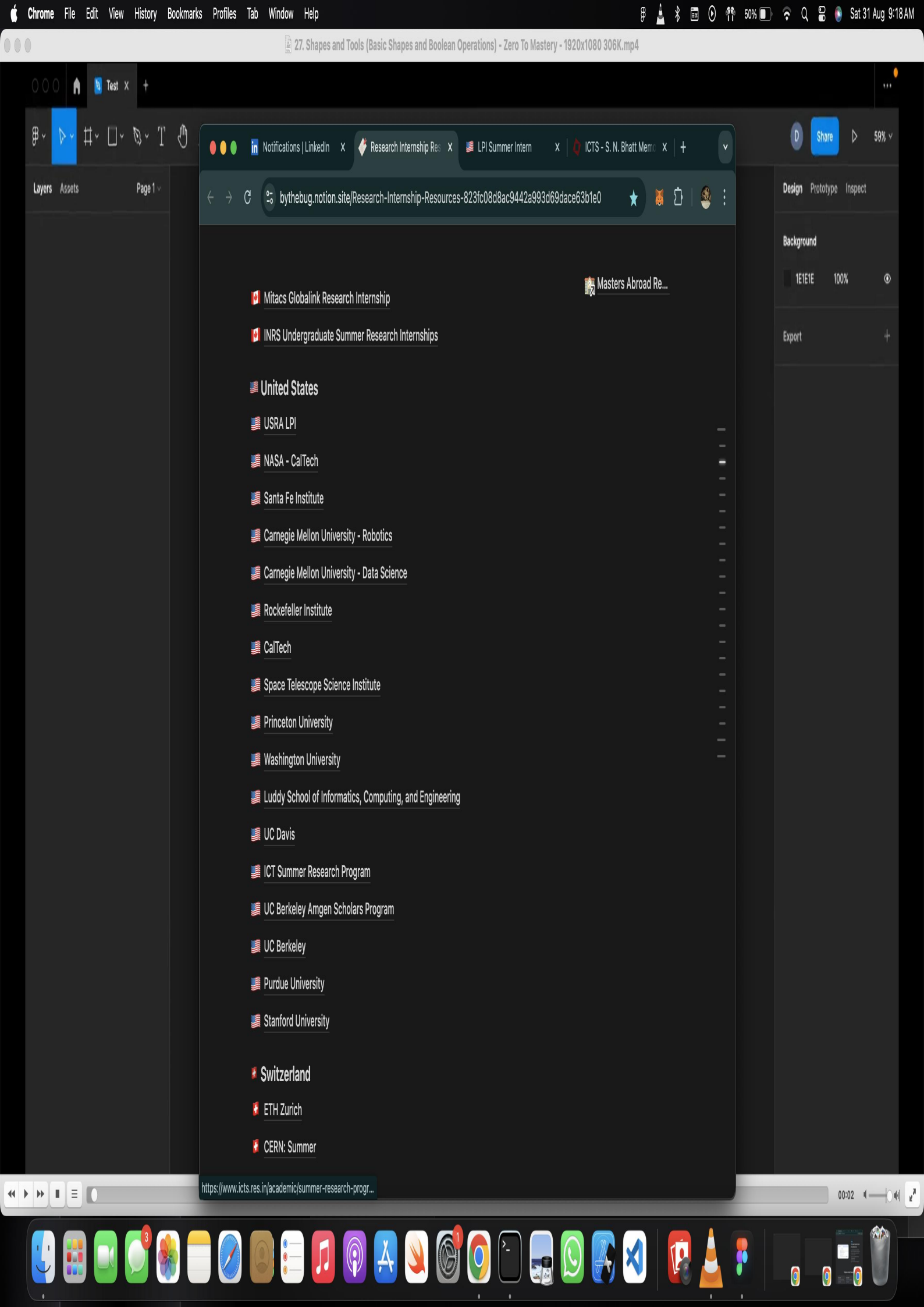
Ex:- if $f(x, y) \rightarrow$ here unlike slope the function doesn't change in one direction like the above fig. We use gradient instead of slope (a vector that points in the direction of greatest rate of increase of the function)

$$\nabla f = \left(\frac{\partial f}{\partial x}, \frac{\partial f}{\partial y} \right)$$

If the gradient vector at $(2, 3)$ is $\nabla f = (4, 5)$, it means:

- Moving in the direction where x increases by 4 units and y increases by 5 units will make you climb the hill the fastest.

$$x := x - \alpha \frac{\partial J(\theta)}{\partial x} \quad \text{Gradient descent step}$$



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Goutham N

Software Engineering Job Simulation

Certificate of Completion

October 6th, 2023

Over the period of October 2023, Goutham N has completed practical tasks in:

Interface with a stock price data feed
Use JPMorgan Chase & Co. frameworks and tools
Display data visually for traders
Bonus task: Open source contribution