

Introduction to SwiftUI Animations

Selvarajan - Jan 04, 2025

Who am I?

- Working @ Celebrus
- 15+ years of experience in IT industry
- Passionate about iOS & SwiftUI
- Passion for Art



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What to Expect ?

from this session...

Agenda

- Why Animation?
- SwiftUI: Implicit, Explicit Animations
- Animation Options
- View Transitions
- Customising Animations
- More Animation Techniques
- Alternative Animation Approach
- Best Practices
- Resources

Why Animation?

Animation can enhance user experience
and make your app stand out

SwiftUI Animations

- UIKit vs SwiftUI
- Easy to add animations
- No external libraries
- Stages of animation:
 - Trigger —> State Change —> Animation Effect
- Ways to add animation: Implicit / Explicit / Transitions

Implicit Animations

Automatically animate changes to views with “.animation” modifier

DEMO

What can be Animated?

Simple rule: Anything numeric can be animated

Offset, position, opacity, color

frame height & width, font-size

cornerRadius, scaleEffect,

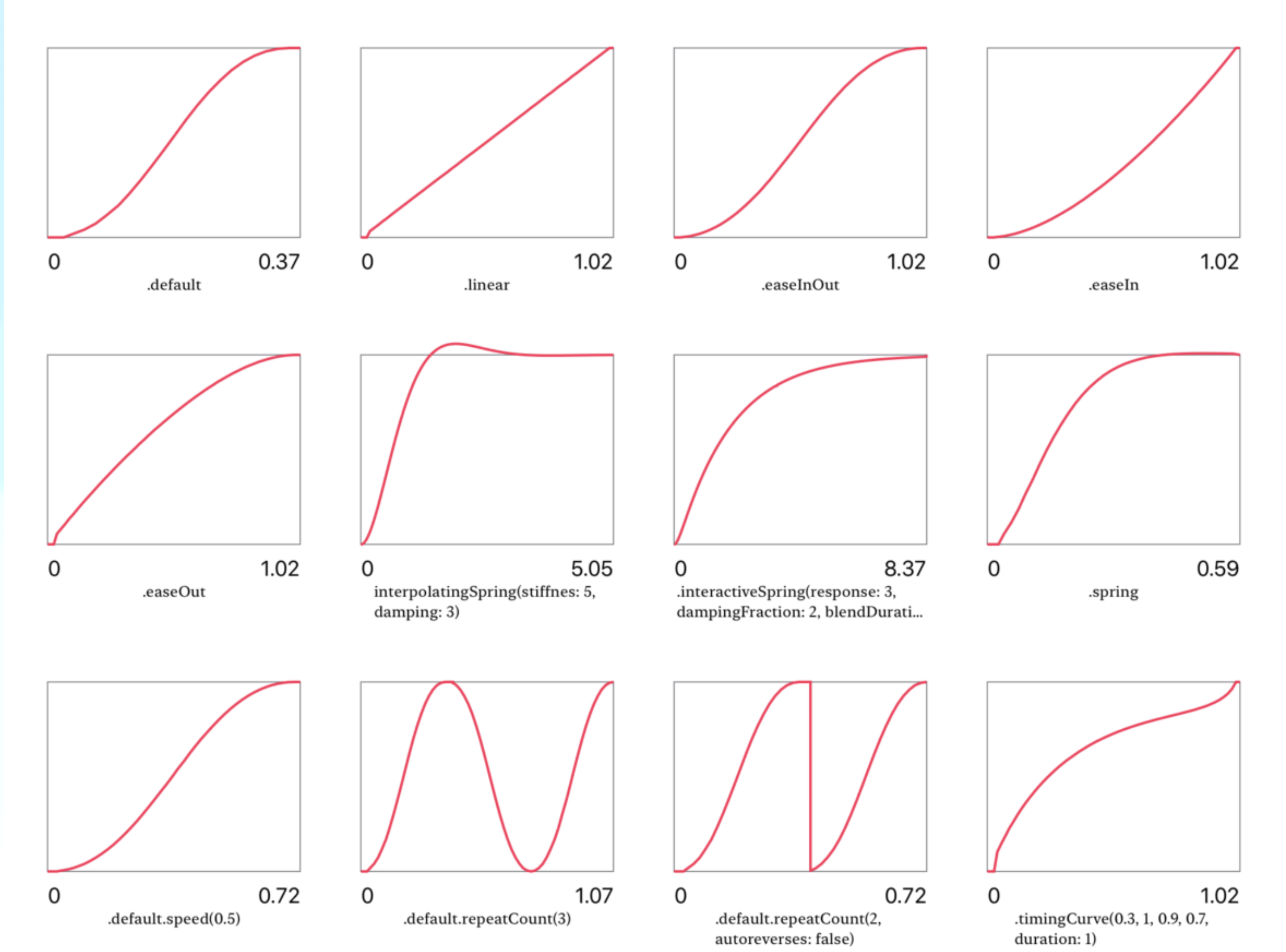
rotationEffect, rotation3DEffect

Animation Options

Experiment with

animation types, delay, repeatForever, autoReverse

Animation Curves



Explicit Animations

Precisely control the timing and duration of animations.

DEMO

View Transitions

Control how a view appears and disappears on the screen

DEMO

Customising Animations

Animation Curves

withTransaction

Animatable Protocol

DEMO

More Animation Techniques

MatchedGeometryEffect

Animating a Custom Shape

Animation with Masking

Phase Animation

DEMO

Alternative Animation Approach

Lottie Files

DEMO

Best Practices

- Keep animations meaningful
- Avoid over-using animations
- Test across devices
- Chain animations whenever needed
- Respect user's accessibility settings (Reduce Motion Settings)
- Debug the animation
- Reduce animation duration
- Minimise state updates
- Be cautious about `repeatForever`, `onAppear`
- For high GPU demanding animations we can use Metal APIs



With Metal



Without Metal

Resources

- [WWDC](#) Videos - Search for “Animation”
- [BigMountainStudio.com](#) - “SwiftUI Animations Mastery” Book
- [Objc.io](#) - Swift Talks - In-depth videos on Animation
- [Paul Hudson](#) - “PRO SWIFTUI” Book
- Youtube Videos
 - “[HackingWithSwift](#)” Channel - Search for “Animation”
 - “[Swiftful Thinking](#)” Chennel - Search for “Animation”
- Patreon Accounts
 - [Sucodee](#)
 - [Shubham Singh](#)

Summary

- Animation Intro
- Implicit animations - various animation options.. animation curves
- Explicit animations to have more control
- View transitions - the way a view appears or disappears.
- Customising the animations with curves, withTransaction and animatable protocols
- Advanced animation techniques with custom shapes, masks, matchedGeometryEffect and phase animator
- Finally with best practices and resources to improve the knowledge

Thank You!

Scan for project url:



Demo Project Link:

[https://github.com/coder-selvarajan/
SwiftUI-Animations-Demo](https://github.com/coder-selvarajan/SwiftUI-Animations-Demo)



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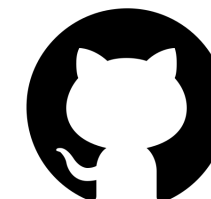
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