

# pop动画框架分享

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# pop介绍

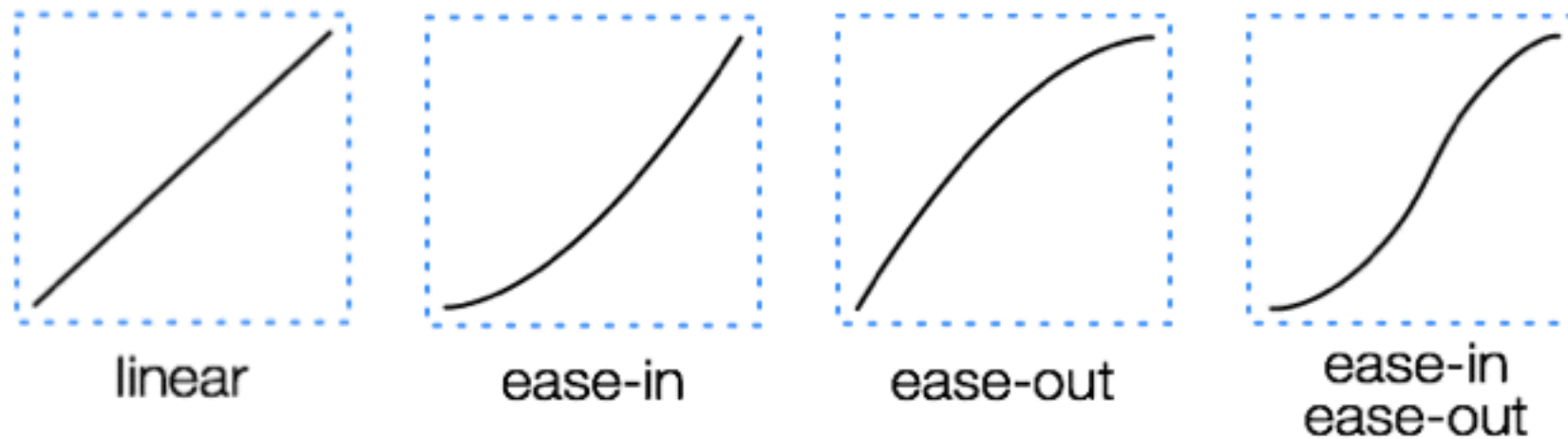
- GitHub上的一句话描述:
- An [extensible](#) iOS and OS X animation library, useful for [physics-based](#) interactions.

# pop的特性与优势

- Spring和Decay类型动画的支持
- 熟悉又统一的接口
- 可扩展（属性、动画类型）
- 高效率

# 动画类型

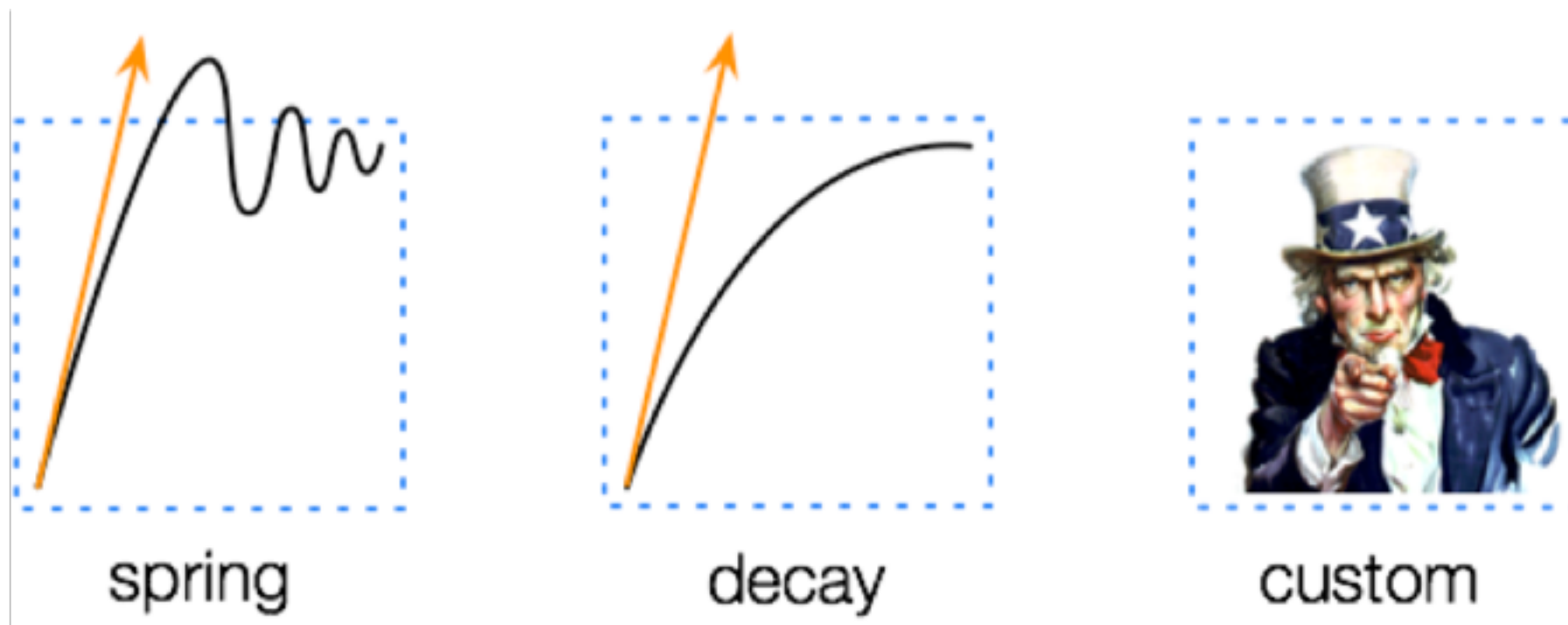
- 苹果提供的基本动画方式



- CAMediaTimingFunction

# 动画类型

- 除基本动画方式，pop还支持这些：



# pop使用介绍

- Sample

```
POPSpringAnimation *anim = [POPSpringAnimation  
    animationWithPropertyNamed:kPOPLayerPositionX];  
anim.velocity = @1000;  
anim.springBounciness = 10;  
anim.toValue = @100;  
[button.layer pop_addAnimation:anim forKey:@"my spring animation"];
```

# 熟悉的用法

- CoreAnimation

```
CABasicAnimation *animation = [CABasicAnimation animation];  
animation.keyPath = @"position.x";  
animation.toValue = @123;  
animation.duration = 1;  
[button.layer addAnimation:animation forKey:@"basic"];
```

- pop

```
POPBasicAnimation *animation = [POPBasicAnimation  
    animationWithPropertyNamed:kPOPLayerPositionX];  
animation.toValue = @123;  
animation.duration = 1;  
[button.layer pop_addAnimation:animation forKey:@"basic"];
```

- delegate也类似

- pop所有的动画类型都支持类似的用法
- 好消息： pop的model layer tree和presentation layer tree是同步的
- 更多的属性能被动画（任意对象；支持自定义动画属性）



# 自定义动画类型

```
POPCustomAnimation *anim = [POPCustomAnimation
animationWithBlock:^(BOOL(id target, POPCustomAnimation *animation) {
    CGFloat alpha = [target alpha];
    alpha -= animation.elapsedTime / 5;
    if (alpha <= 0) {
        [target setAlpha:0];
        return NO;
    }
    [target setAlpha:alpha];
    return YES;
}]);

[view pop_addAnimation:anim forKey:@"alpha animation"];
```

# pop的基本架构

- Animation:

POPAnimation、POPPropertyAnimation、POPBasicAnimation、  
POPSpringAnimation、POPDecayAnimation、POPCustomAnimation

- POPAnimator

```
- (void)pop_addAnimation:(POPAnimation *)anim forKey:(NSString *)key
{
    [[POPAnimator sharedAnimator] addAnimation:anim
                                   forObject:self
                                   key:key];
}
```

# POPAnimator

- 使用一个CADisplayLink来做动画
- 动画存储在POPAnimatorItemList中
- render & advance time

# pop的小技巧

- 支持模拟器慢动画

```
UIKIT_EXTERN CGFloat UIAnimationDragCoefficient();
```

- runloop observer来处理pending list

```
static const CFIndex CATransactionCommitRunLoopOrder = 2000000;  
static const CFIndex POPAnimationApplyRunLoopOrder =  
    CATransactionCommitRunLoopOrder - 1;  
kCFRunLoopBeforeWaiting
```

- runloop observer来处理pending list

“谢谢收看。”

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