

# 渐进式动画解决方案

渚薰 / 淘宝-虚拟互动实验室

# 渚薰

12年加入手机淘宝

三年基础架构工作

三次H5首页改版

15年加入Weex

一年Framework开发工作

16年进军动画3D领域





# 996乐队

爆裂鼓手



P W A

**P** rogressive

**W** eb

**A** nimations



**REAL STUFF**

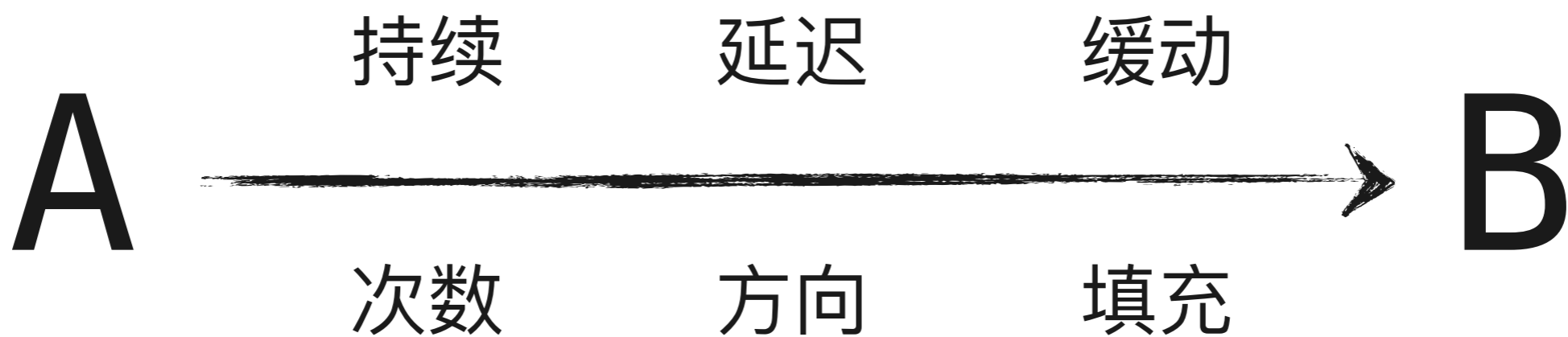
- 重新**认识**动画
- 如何**操作**动画
- 如何**管理**动画
- 如何**制作**动画
- 重新**思考**动画

# “动效和插值”

-重新认识动画

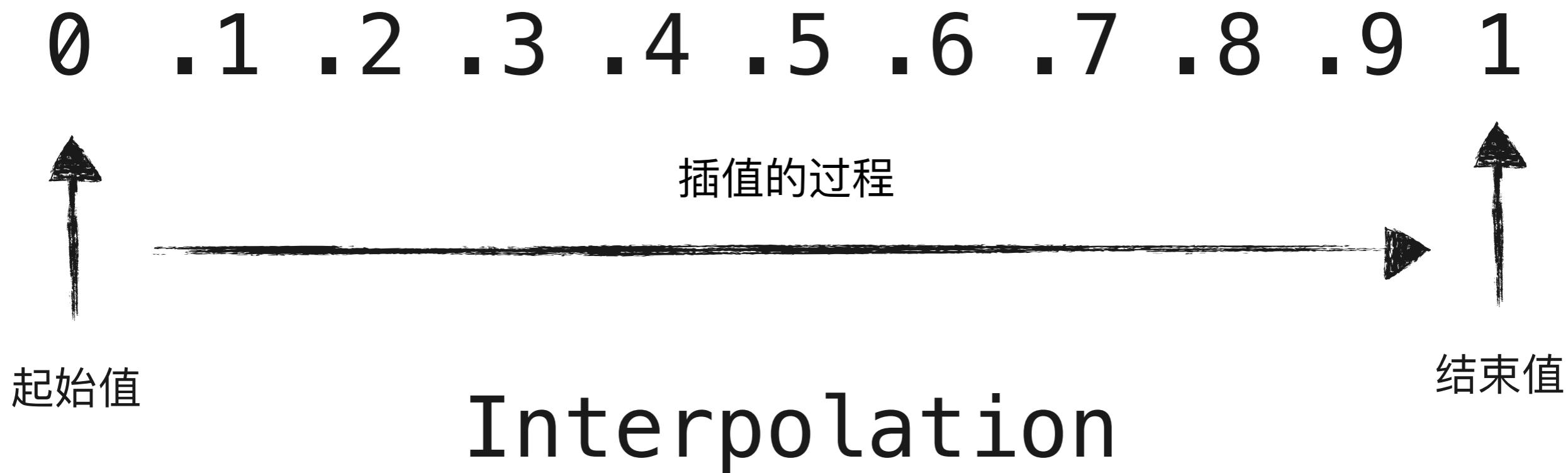


# 动效是什么？

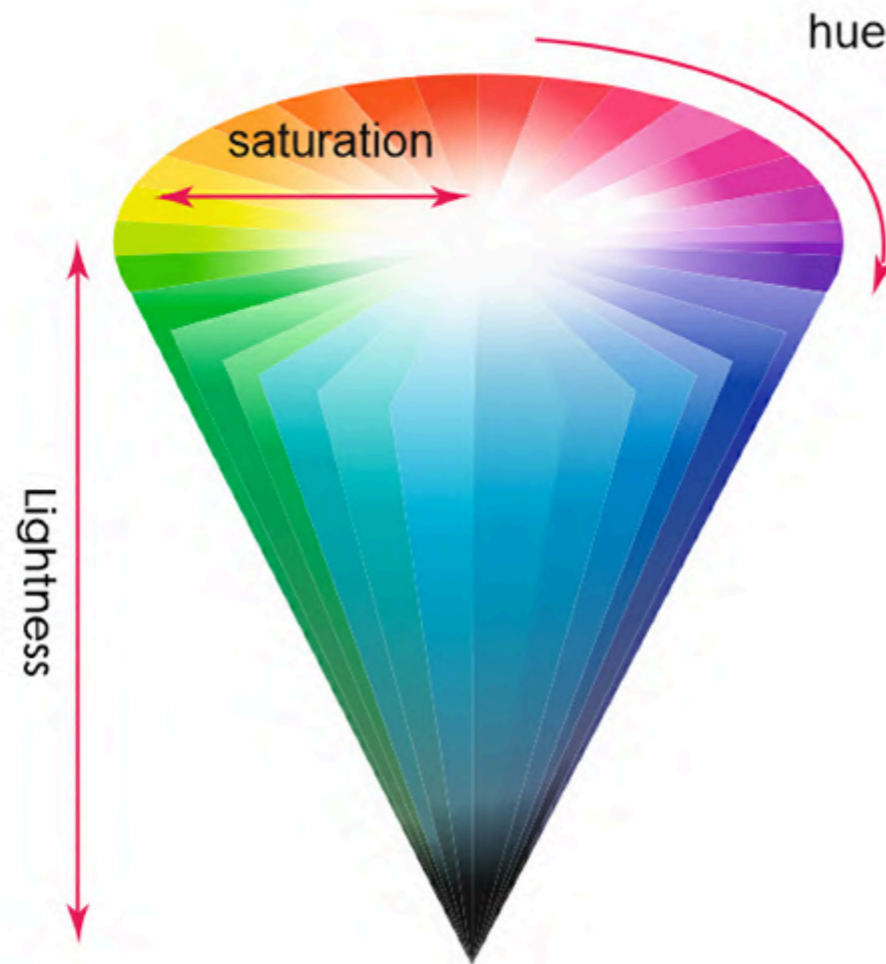


Motion Effect

# 动效作用对象?



# 颜色的插值



#ff5000

转换

H 19  
S 100%  
L 50%



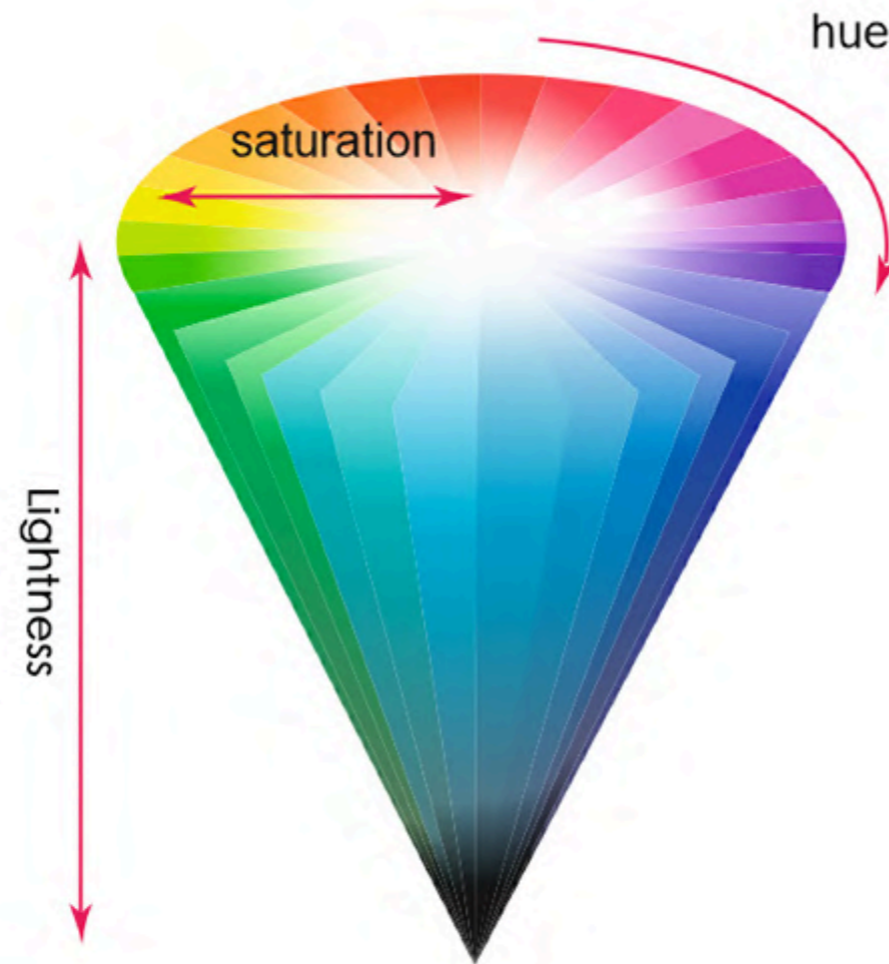
#000000

转换

0 H  
0% S  
0% L



# 颜色的插值



#ff5000

转换

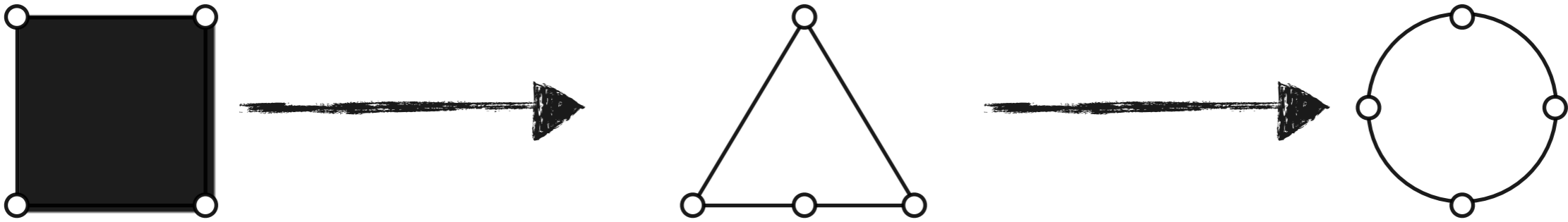
H 19  
S 100%  
L 50%

#000000

转换

0 H  
0% S  
0% L

# 几何图形的插值



# “脚本驱动”

—如何操作动画

CSS Animation

SVG Animation

JS-Driven Animation

# JS-Driven Animation





# WORKSPACE

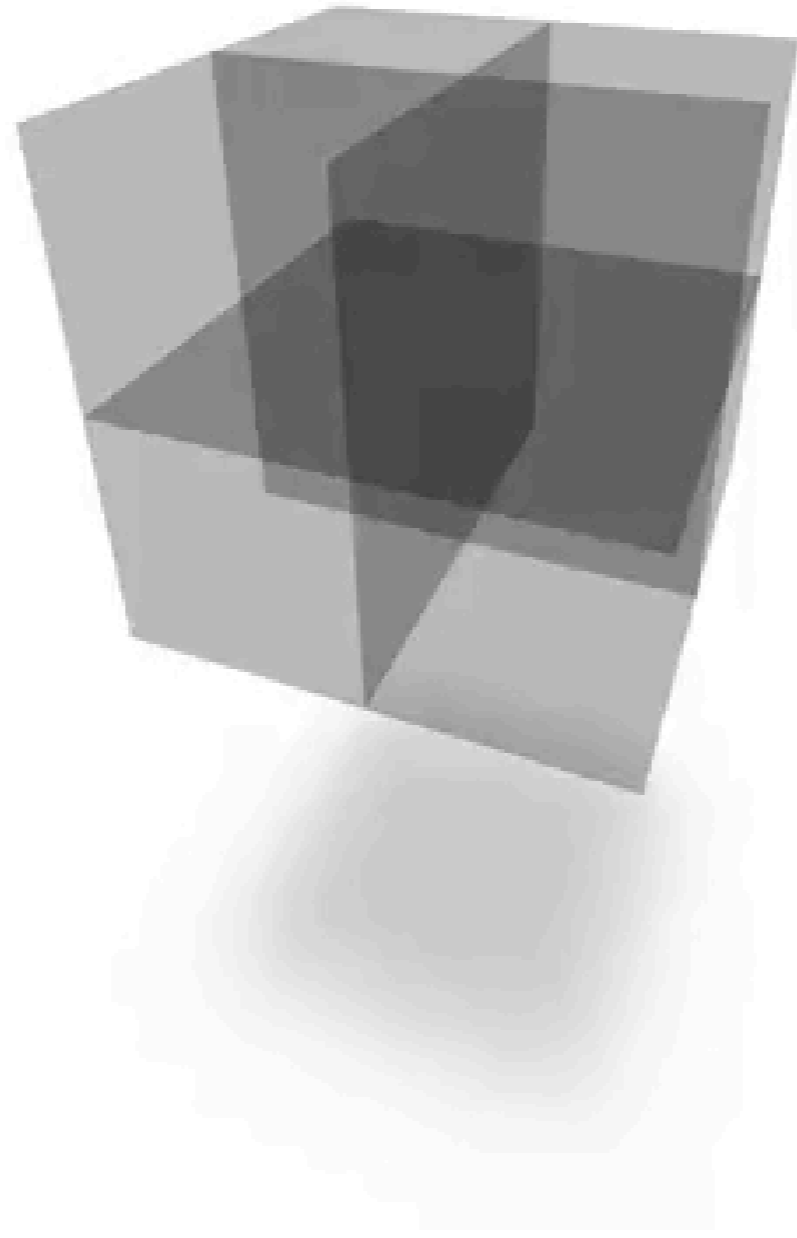
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# GPU.JS

GPU Accelerated JavaScript



CANVAS





**PixiJS** v4

# The HTML5 Creation Engine

Create beautiful digital content with the fastest, most flexible  
2D WebGL renderer.

Created by **goodboy**™

---

AMF

```
1  const raf = requestAnimationFrame;
2  const start = 0;
3  const end = 1;
4  const duration = 600;
5
6  let i = start;
7  let step = (end - start) * (16 / 600);
8  raf(function tick1() {
9      i += step;
10     console.log(i);
11     raf(tick1);
12 });
```



```
1  const raf = requestAnimationFrame;
2  const start = 0;
3  const end = 1;
4  const duration = 600;
5
6  let i = start;
7  let step = (end - start) * (16 / 600);
8  raf(function tick1() {
9      i += step;
10     console.log(i);
11     raf(tick1);
12 });
```

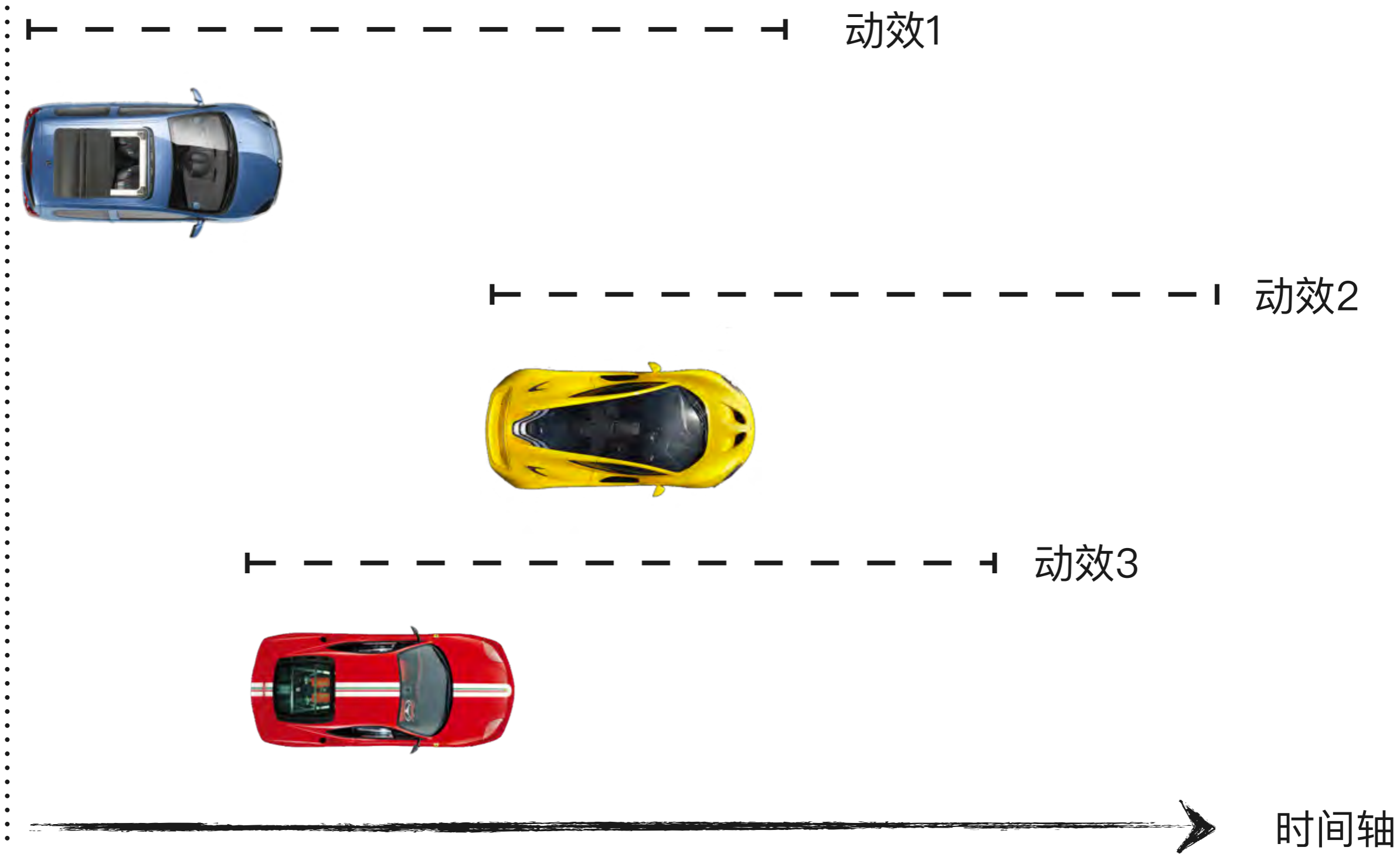
```
1  const raf = requestAnimationFrame;
2  const start = 0;
3  const end = 1;
4  const duration = 600;
5
6  const last = Date.now();
7  raf(function tick2() {
8      raf(tick2);
9      const elapsed = Date.now() - last;
10     const percent = elapsed / duration;
11     console.log(start + (end - start) * percent);
12 });
```

```
1  const raf = requestAnimationFrame;
2  const start = 0;
3  const end = 1;
4  const duration = 600;
5
6  const last = Date.now();
7  raf(function tick2() {
8    raf(tick2);
9    const elapsed = Date.now() - last;
10   const percent = elapsed / duration;
11   console.log(start + (end - start) * percent);
12 });
```

```
1  const raf = requestAnimationFrame;
2  const pool = [];
3
4  export const add = update => pool.push(update) - 1;
5
6  export const remove = index => pool[index] = undefined;
7
8  export const tick = () =>
9    pool.forEach(update => !update.pasued && update());
10
11 export const pause = index => pool[index].pasued = true;
12
13 export const resume = index => pool[index].pasued = false;
```

# “动画流”

—如何管理动画



# 时间轴

```
add(e, {
    playAt: number
}) => assign(e, {playAt});

tick(elapsed) => {
    if (e.playAt >= elapsed)
        e.start();
}
```

# 时间轴

```
add(e, {  
    playAt: () => boolean  
}) => assign(e, {playAt});
```

```
tick(elapsed) => {  
    if (e.playAt())  
        e.start();  
}
```



# 时间轴

```
add(e, {
    playAt: () => number
}) => assign(e, {playAt});

tick(elapsed) => {
    if (e.playAt() >= elapsed)
        e.start();
}
```

# 时间轴

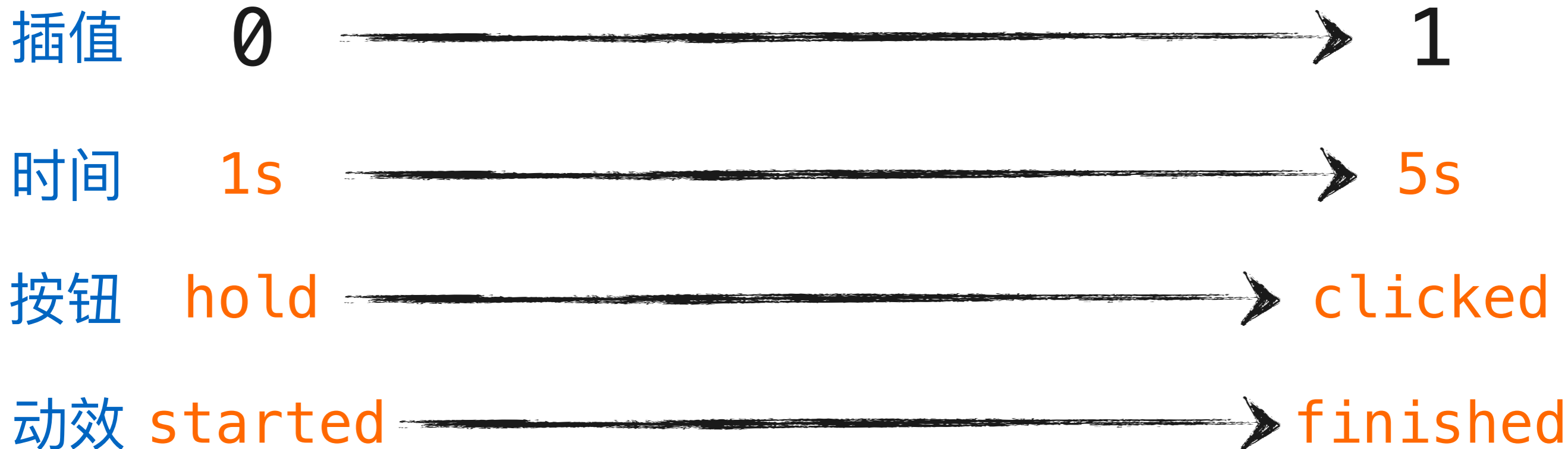
() => e1.finished;

() => assets\_fetched;

() => store.getState() === 'BTN\_CLICKED';

() => e2.started && (e2.startAt + 500);

# 流



.....



控制/决定/管理

Motion Effect's playAt or stopAt

# “可量化和数据驱动”

—如何制作动画



# Adobe Creative Cloud Photoshop CC

2017 Release

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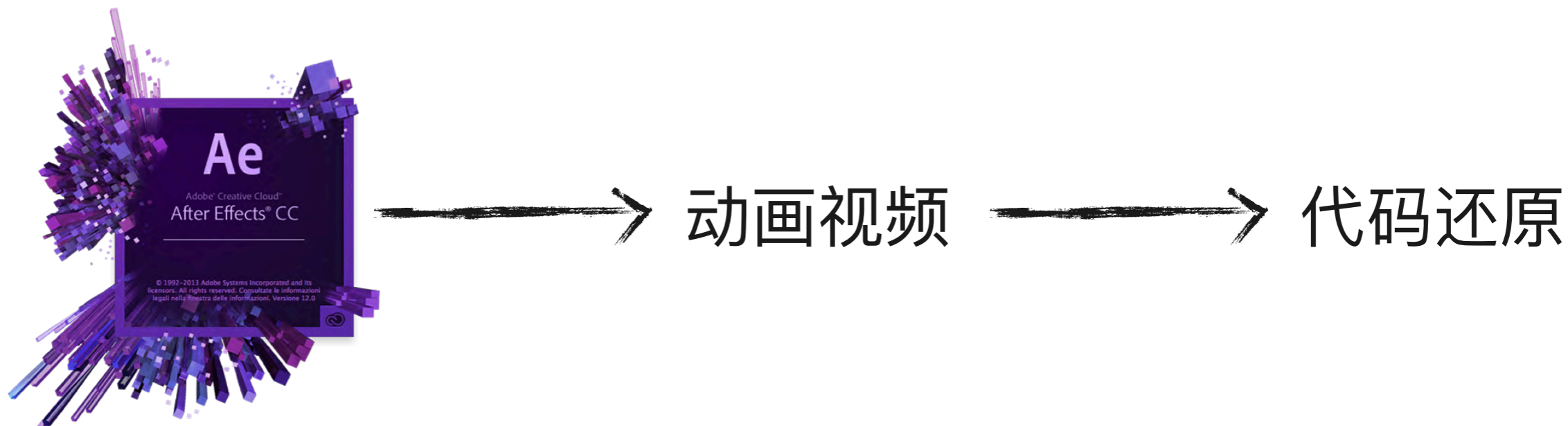
Artwork by Amr Elshamy  
See the About screen for details

Reading preferences...

Thomas Knoll, Seetharaman Narayanan, Russell Williams,  
Jackie Lincoln-Owyang, Alan Erickson, Ivy Mak, Sarah Kong,  
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Mohr, Yukie Takahashi, David Dobish, Steven E. Snyder, John  
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Balakrishnan, Tim Wright, John Worthington, Mark Maguire,  
Maria Yap, Pam Clark, B. Winston Hendrickson, Pete Falco,  
Dave Polaschek, Kyoko Itoda, Kellisa Sandoval, Steve



# 粗旷的做法



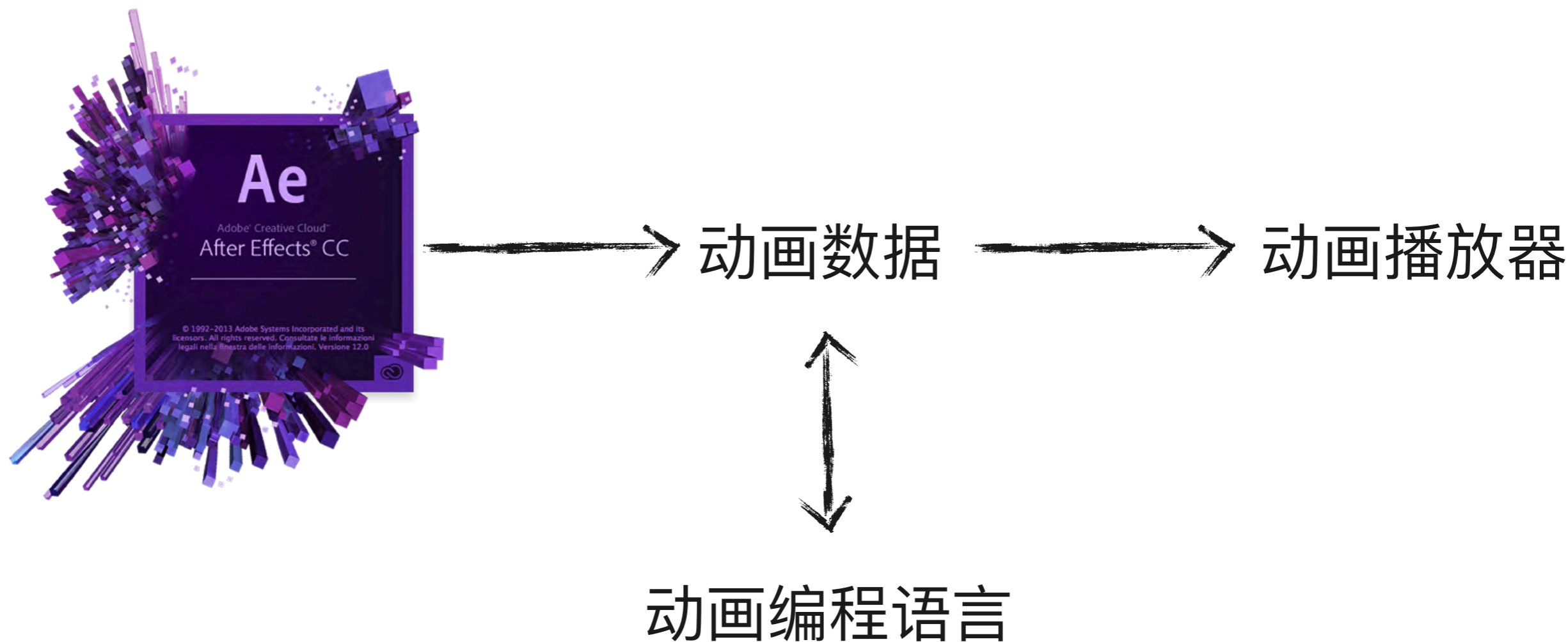
# 温馨的做法

内心OS：前端就是  
这么不靠谱

美女设计师  
手把手教你做动画



# 正确的做法





# 成为人生赢家

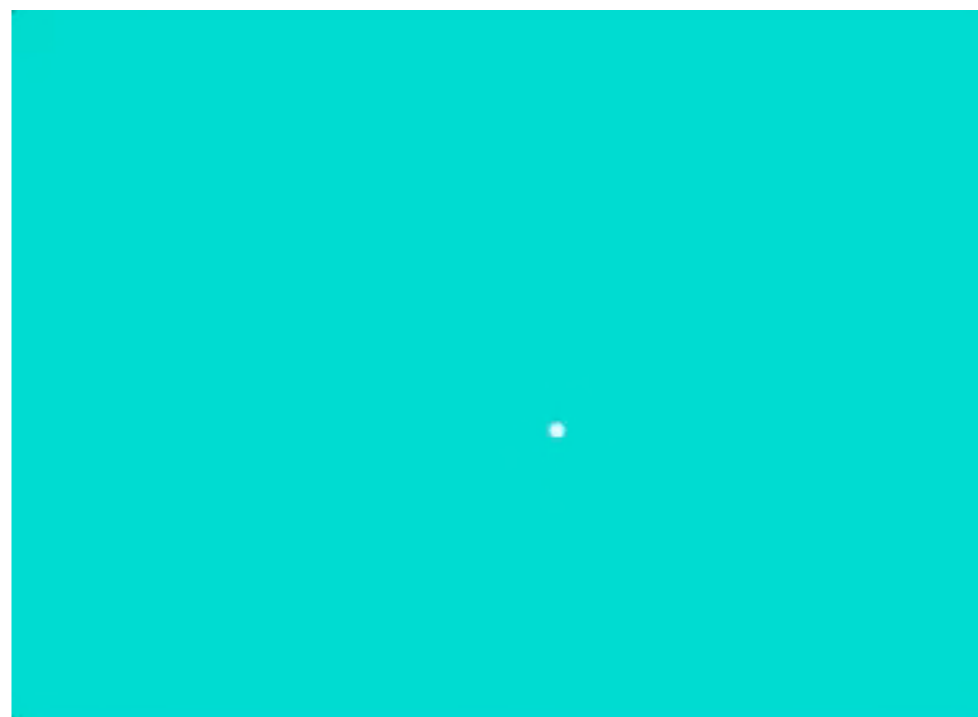
内心OS：前端哥哥好屌的，一下子就满足我的需求了

内心OS：有了动画制作神器，还怕没时间拍拖？



# Data-Driven Animation







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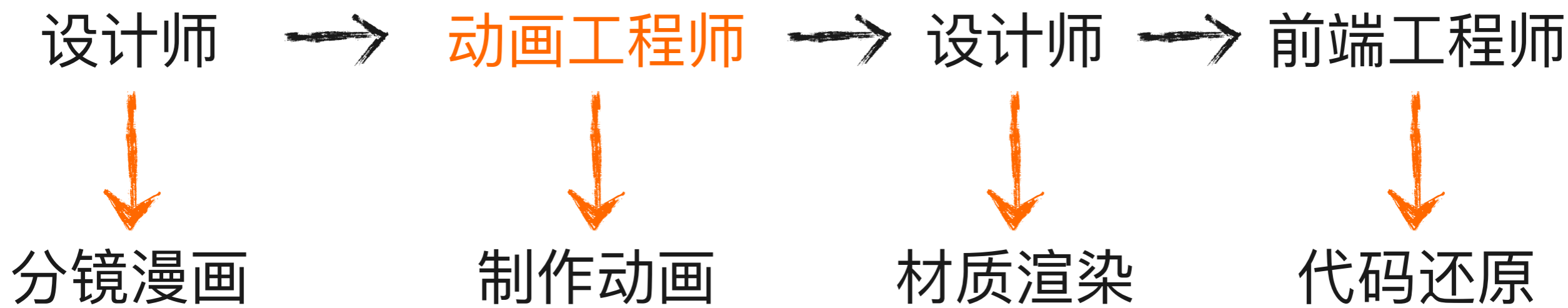
# Animation Flow Toolkit

# “动画工程师”

—重新思考动画

设计师 → 前端工程师





**THANKS!**

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