React-Spring: Kickstart your Animation Experience!

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Hello! 👋 Who am I?

- 20+ years in the financial tech industry

- Deep focus on UI/UX and DevOps throughout

- Application development background:

  - 1995 - 2006: Early Web

  - 2006 - 2014: Windows .NET Clients

  - 2014 - now: Modern Web

- Always fascinated/inspired by animation frameworks!

What should you know for this talk?

- Basic experience with React

  - Basic hooks knowledge (useState, useRef, useEffect)

- A bit of ES6+ (Arrow functions)

Animating Web Apps (non-⚛)

- JQuery

- CSS Animation

- Greensock / GSAP / TweenMax

- Vue and Angular - native tie-ins

What are the ⚛ Options?
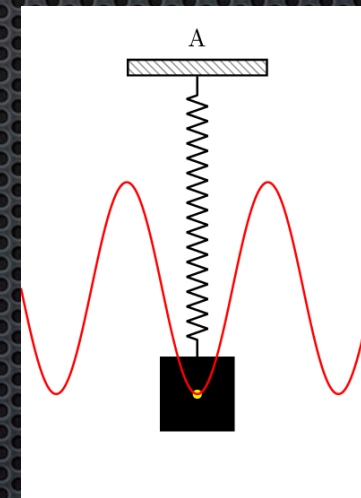
- React-Transition-Group

- GSAP (using class objects / useRef())

- PopMotion Pose (popmotion.io/pose)

- React-Spring…

Sneak Peek

What is React-Spring?

- Spring-physics based animation library

- No more cumbersome duration or easing!

  - Mass, friction, tension, velocity...

  - Easing/Duration still available!

- Avoids the React render cycle

- Both Hooks and Render Props available

Let's see some code… 💻

Intro to useSpring()

React-Spring History

- **Cheng Lou** - React-Motion

  - Spring Physics - No more easing and timing!

  - https://youtu.be/1tavDv5hXpo

- **Christopher Chedeau -** "animated"

  - Override to the React render cycle

  - https://speakerdeck.com/vjeux/react-rally-animated-react-performance-toolbox

- **Paul Henschel** bridged these two concepts…

  - https://blog.usejournal.com/why-react-needed-yet-another-animation-library-introducing-react-spring-8212e424c5ce

Compatibility

* React

* React-Native, React-Native-Web

* Universal (non-react)

  * Requires extra effort, but supported

All based on a core JS-based physics engine

Demo #3

Building on useSpring()
and useSpring**s**()

What values can I animate?

All of the following…

- Colors (names, rgb, rgba, hsl, hsla, gradients)

- Absolute lengths (cm, mm, in, px, pt, pc)

- Relative lengths (em, ex, ch, rem, vw, vh, vmin, vmax, %)

- Angles (deg, rad, grad, turn)

- Flex and grid units (fr, etc)

- SVG paths

- Non-standard string patterns: transform, border, boxShadow, etc.

- And Lots More!

Supported 🎯 Frameworks

- **HTML**

- **SVG** (built on existing HTML integration)

- **Three.js** - Robust WebGL-based 3D Lib

  - React-Three-Fiber (also by Paul Henschel)

- **ZDog** - Simple, Pseudo 3d engine

- **Konva** - 2D Canvas Library

Demo #4

Modals using useTransition()

React-Spring Hooks

Hook Name	Purpose
useSpring	Single Spring: set of animated props based on config or function
useSprings	Multiple Springs, each with different configs (lists, routing, carousels)
useTransition	Triggered enter/leave springs for transition between multiple states
useTrail	Multiple springs that follow each other for staggered animation
useChain	Sequence Springs in order (includes ability to overlap and reverse)

For more on this…

- Watch talks by **Cheng Lou** and **Christopher Chedeau!**

- **React-Spring**: https://www.react-spring.io

  - API Docs and Demos

  - v9 coming: strong TS support and API changes

  - Major thanks to Paul Henschel (Creator - **@0xca0a**) and Alec Larson (co-author - @alecdotbiz) for all of their ongoing work

- **React-Three-Fiber**

  - https://github.com/react-spring/react-three-fiber

- **Spectrum.Chat** community for both

For even more…

- SVG, Threejs - Follow **Sarah Drasner** (@sarah_edo)

  - CSS Tricks, Frontend Masters, etc.

- **Jason Lengstorf** (@jlengstorf): Learn With Jason

  - w/ Paul Henschel - https://youtu.be/1rP3nNY2hTo

  - w/ Sarah Drasner - https://youtu.be/mXcawneCRHY

Take-aways…

- Try this out!

  - Easy integration, powerful results

- Stuck? Ask questions (github, spectrum.chat)

- Contribute (code, sponsorship) to OSS projects!

Final Demo!

react-three-fiber and react-spring

Thank You!!

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