

A large, faceted diamond is centered in the image, set against a dark, textured background that resembles a cloudy sky. The diamond's facets are clearly visible, reflecting light in various shades of blue and white. Overlaid on the center of the diamond is the text "Polishing / Juicing" in a bold, white, sans-serif font.

Polishing / Juicing

Kolja Bopp

Game Design

Content

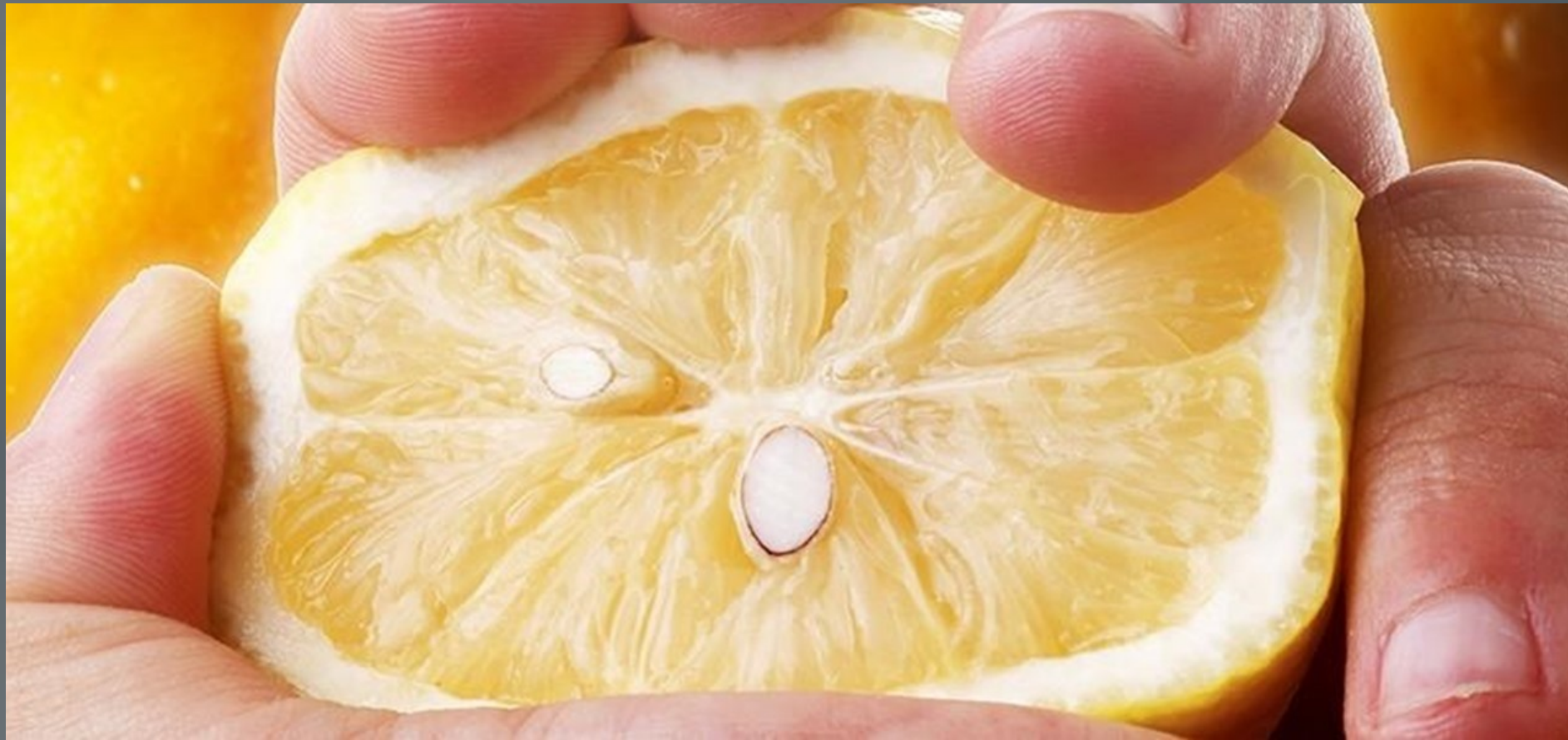
Polishing

Workload

Content

Polishing

How to squeeze more **juice** out of your game?



How to make your game **feel** better?



Keywords

Animations (Easing)

Randomization

VFX (Particles)

Delay / Slow motion

Impact Effects

Higher Rate of Fire

Scaling

Fuel your game feel

Dynamic Camera

Bouncing

Explosions

Screen Shake

Wobbling

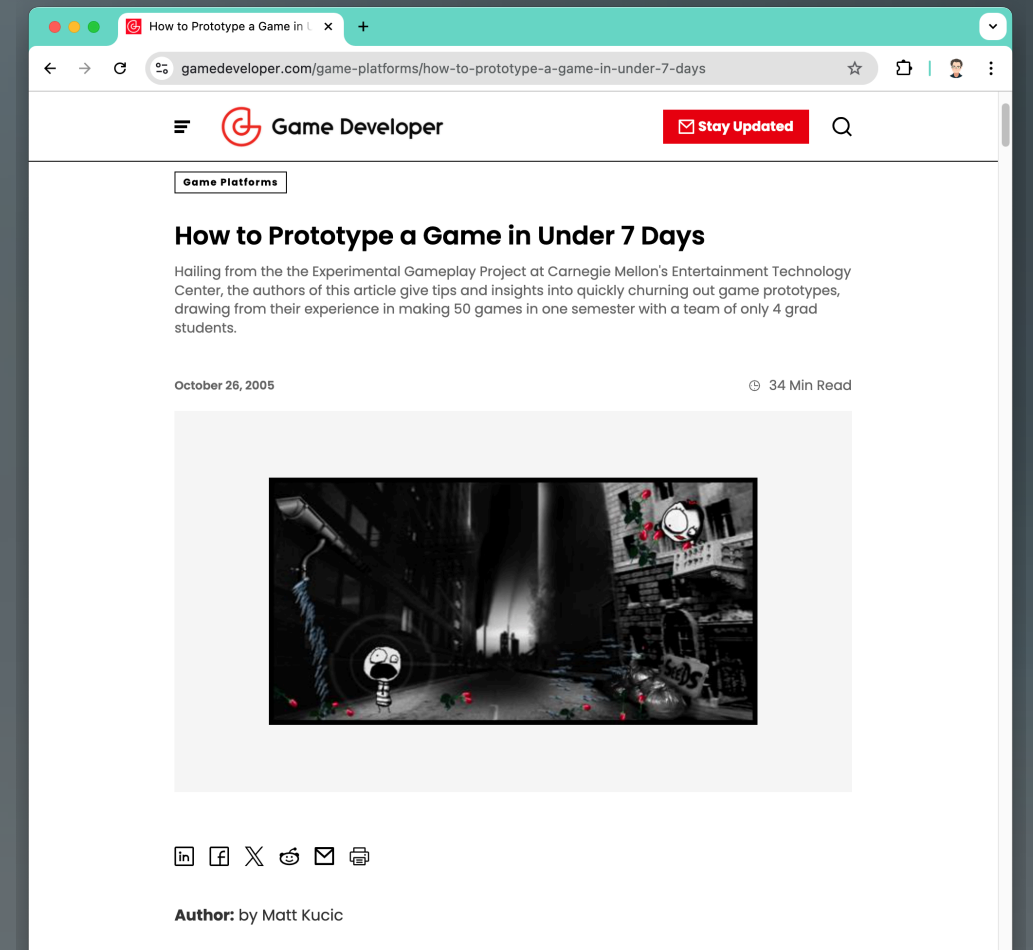
UI Sounds

Action Sounds

Rewarding Sounds

Make it juicy!

“Juice” was our wet little term for constant and bountiful user feedback. A juicy game element will bounce and wiggle and squirt and make a little noise when you touch it. **A juicy game feels alive and responds to everything you do** – tons of cascading action and response for minimal user input.



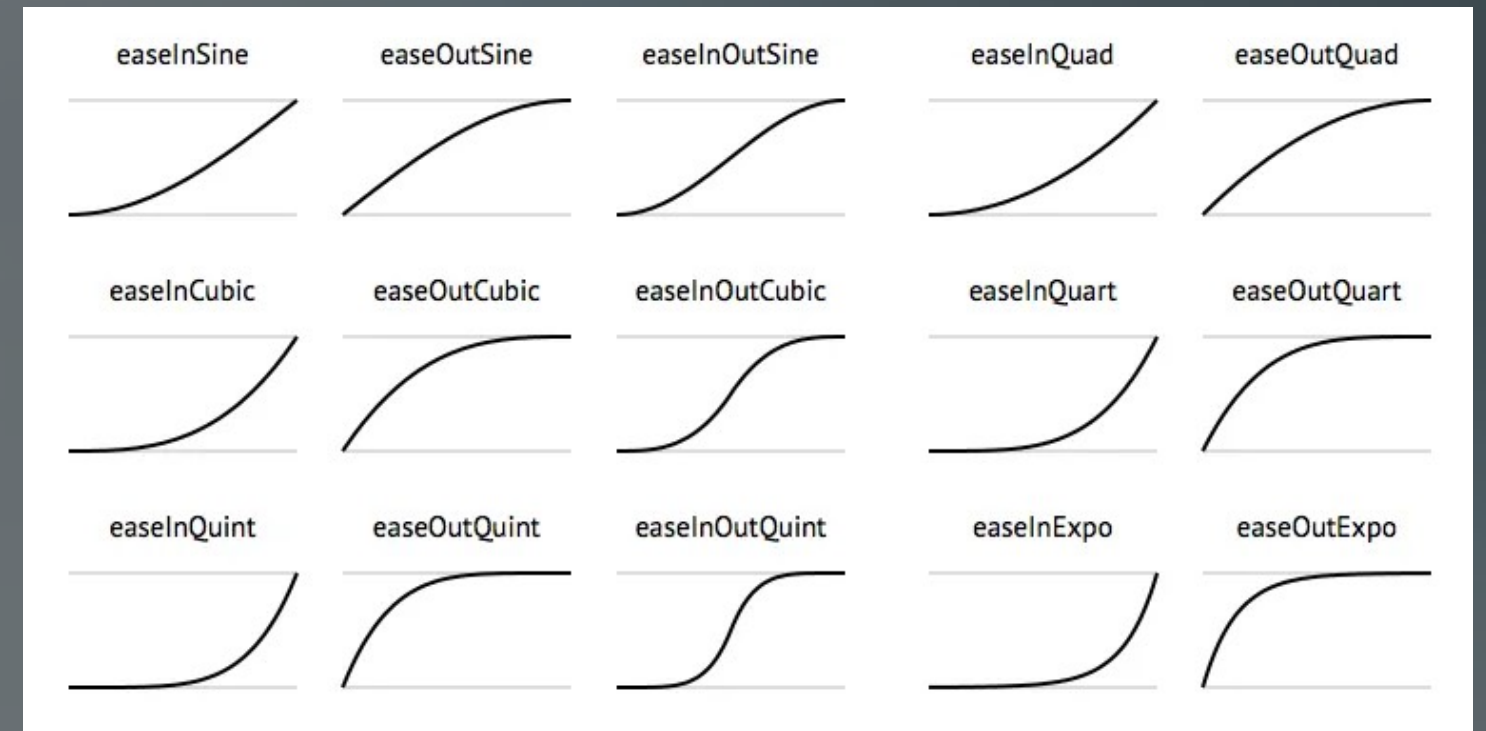
Kucic, Matt (2005, October 26). How to Prototype a Game in Under 7 Days. Game Developer. <https://www.gamedeveloper.com/game-platforms/how-to-prototype-a-game-in-under-7-days>

Juice it or lose it



grapefrukt (2012, May 24). Juice it or lose it - a talk by Martin Jonasson & Petri Purho. YouTube.
<https://youtu.be/Fy0aCDmgnxg?si=x7xOjA8nk9UyY9Kp>

Animations (Easing)



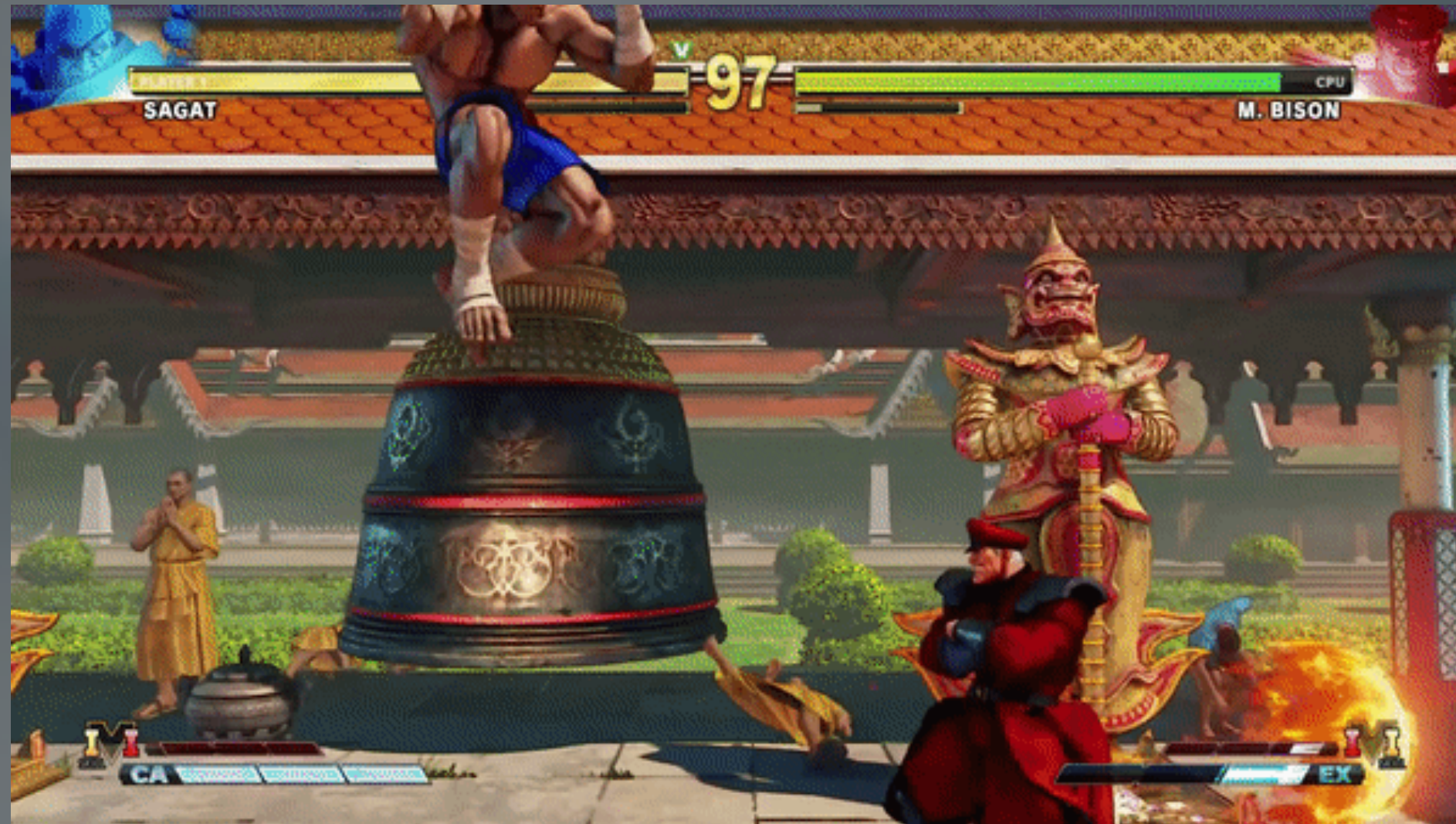
Scaling

Stretching

Bouncing

Wobbling

Delay / Slow motion



Delay / Slow motion



Screen Shake



Dynamic Camera



God of War © 2005 Sony (Santa Monica Studio)

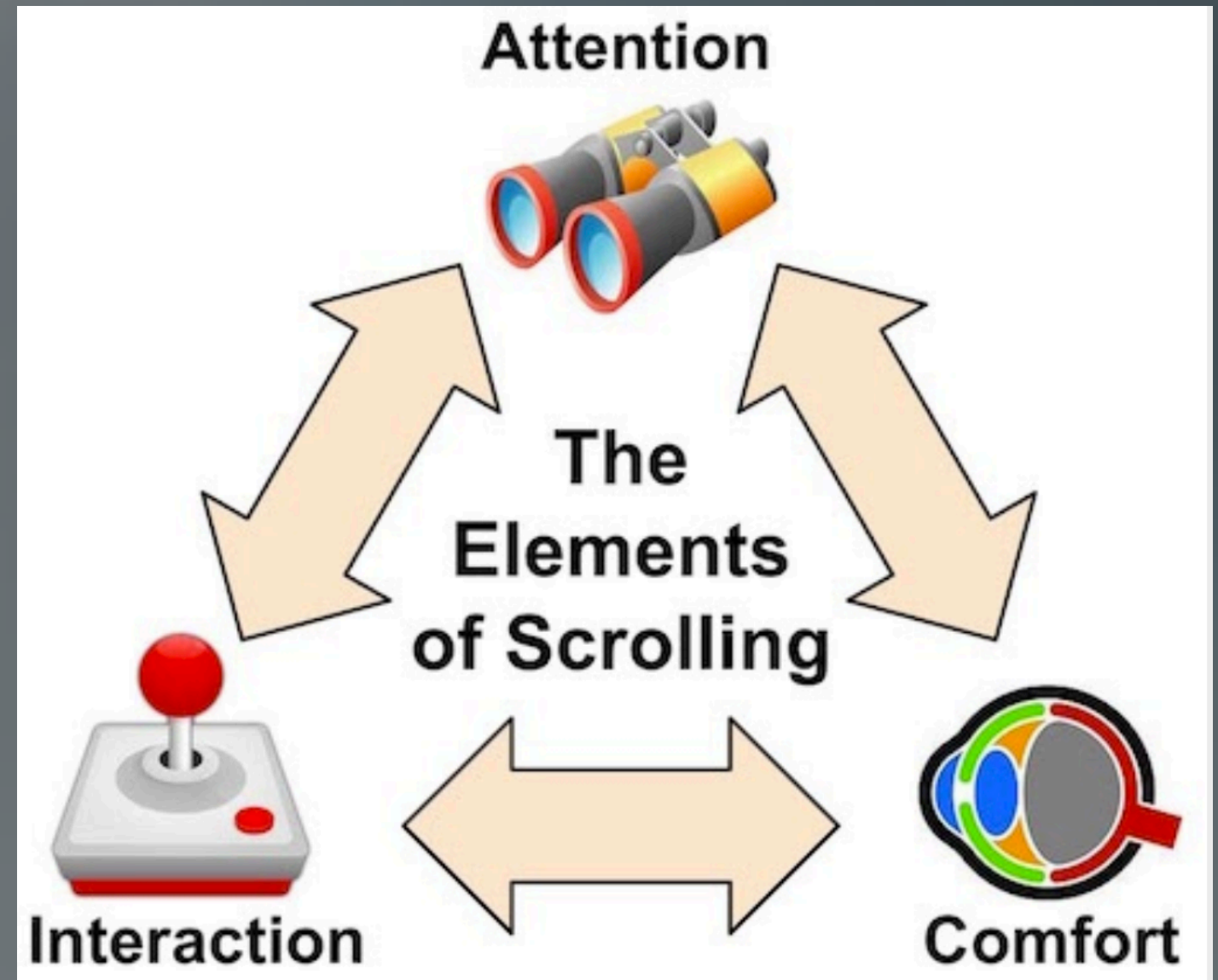
Cameras in Side-Scrollers



Keren, Itay (2015): Scroll Back: The Theory and Practice of Cameras in Side-Scrollers. Game Developer. <https://www.gamedeveloper.com/design/scroll-back-the-theory-and-practice-of-cameras-in-side-scrollers>

Follow The Action

- Directing **attention**
 - Enhancing **interaction**
 - Providing **comfort**
- > Supporting game mechanics



Position-Locking (center)

- Focus on player character
- Equal visibility in all directions
- Unsteady and bumpy



Rally-X © 1980 Namco

Edge-Snapping

- Locking on level edges



Kung-Fu Master © 1984 Irem

Camera-Window

- More calmness
- Less visibility ahead



Jump Bug © 1981 Hiei/Coreland (Alpha Denshi)

Dual-Forward-Focus

- Calmness and more visibility in both directions
- Dynamic changes of direction



Super Mario World © 1990 Nintendo

Platform-Snapping

- Camera only moves when player has landed on platform
- More calmness for precise jumps
- Enough field of view



Super Mario World © 1990 Nintendo

VFX (Particles etc.)

Lower Enemy HP

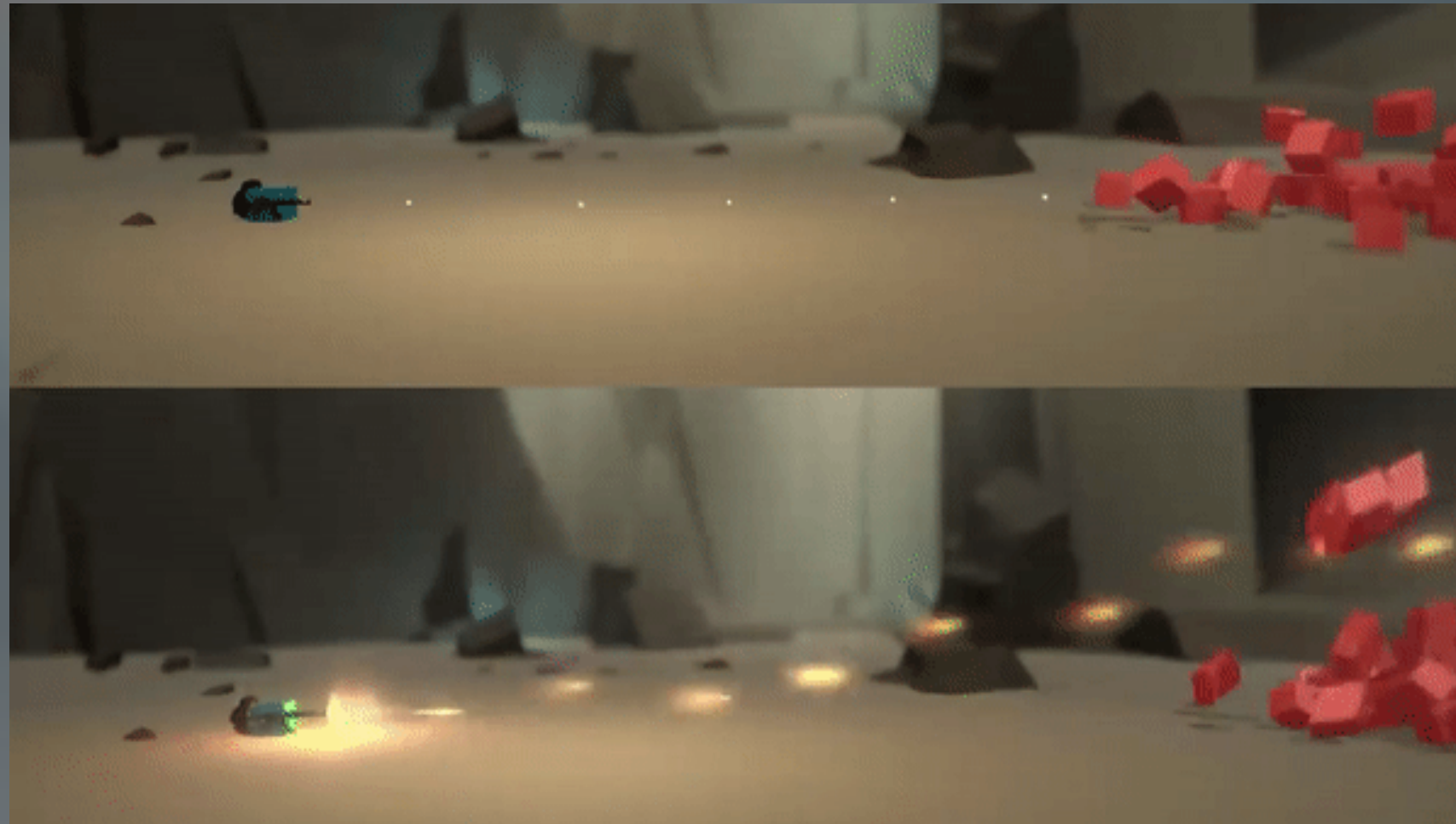
More Enemies

Higher Fire Rate

Bigger Bullets

Faster Bullets

Muzzle Flash



Impact Effects

Hit Animation

Enemy Knock-back

Explosions

Ertunç, Sefa (2021, Jun 24). How Juicy is Your Game? Medium.

<https://sefaertunc.medium.com/game-design-series-ii-game-juice-92f6702d4991>

Game Feel

**Just fill your game
with love and tiny details**

How games work (Input-Feedback-Meaning)



Dutch Game Garden (2013, December 16). Jan Willem Nijman - Vlambeer - "The art of screenshake" at INDIGO Classes 2013. YouTube. <https://youtu.be/AJdEqssNZ-U?si=0OKGC4G5-JQP3Vzz&t=212>. 3:32-6:28

30 tiny tricks that will make your action game better



Dutch Game Garden (2013, December 16). Jan Willem Nijman - Vlambeer - "The art of screenshake" at INDIGO Classes 2013. YouTube. <https://youtu.be/AJdEqssNZ-U?si=0OKGC4G5-JQP3Vzz&t=212>. 3:32-6:28

Check it out



Movement / jump	Arrow keys
Shoot	X
Next slide / feature	D
Previous slide / feature	A
Restart slide / feature	S

Some more...

- **Coyote Time**
- **Hitboxes bigger on enemies, smaller on player**
- **Background parallaxe**
- **Visual Language & Player Guidance**
- **Hidden player support systems**

Further materials

- **Swink, S. (2008). Game Feel: A Game Designer's Guide to Virtual Sensation. Morgan Kaufmann**
- **Salen, K., Zimmermann, E. (2003). Rules of Play. Game Design Fundamentals. MIT Press**
- **CLI (2021, December 30). Juice Up Your Game. Artificials. <https://artificials.ch/juice-up-your-game/>**
- **Unreal Engine (09.11.2023). Practical Polish: Secrets of How to "Juice" Your Game Mechanics in UEFN | Unreal Fest 2023. YouTube. <https://youtu.be/SgJhZw7-46s?si=paS4o-0H5eBztHzB>**
- **Ars Technica (17.07.2019). How Dead Cells Cheated to Make the Game More Fun | War Stories | Ars Technica. YouTube. <https://youtu.be/Uv5NwboDDhk?si=g6L62HxTe1bQar1D>**
- **Game Maker's Toolkit (17.02.2015). Secrets of Game Feel and Juice. YouTube. https://youtu.be/216_5nu4aVQ?si=W88k6cixlZfjzY3l**
- **Keren, Itay (2015): How Cameras in Side-Scrollers Work. GDC Talk. Youtube. <https://youtu.be/pdvCO97jOQk>**
- **Haigh-Hutchinson, Mark (2009): Real time cameras: A guide for game designers and developers. Elsevier**
- **Neski, John (2015): 50 Game Camera Mistakes. Youtube. <https://youtu.be/C7307qRmlMI>**