

The Future of Games

Introduction

- Lots of things are (always) changing in the games industry
- We're going to talk about a few of them that seem important right now
 - Hardware and software trends
 - Game design trends
 - Business model trends

Hardware / Software Trends

Bigger, better, faster, more

- Real-time raytracing (Almost there)
- Improved resolutions / frame rate
 - 4K @ 120
 - 8K
- More ubiquitous physics
 - Soft bodies, fluid, destruction

Solving (heterogeneous) multi-core

- Hardware is only going to get faster by getting wider
- Multithreaded, job-based game architecture is essential
- Current languages and tools are not great at multi-core
 - Can better languages help?
 - More functional programming?
- CPU Increases have largely stopped, need to figure out how to do more on GPUs
 - Physics
 - Machine learning
- Can computation be moved off device?

VR and AR

- Good ones are still too fiddly / too many wires
 - PSVR
 - Oculus Rift
 - HTC Vive
- Non-fiddly ones are underpowered
 - Oculus Quest
- Seems like it might get really hot soon, but still pretty niche
 - Pandemic might have accelerated this, Quest was flying off the shelves apparently
- Someone could still disrupt here
 - Probably only an existing big tech player (Google, Apple, Amazon, etc)
 - Apple's rumoured AR headset? Apple is pretty bad at games though.
 - What if PSVR2 is wireless / room setup free? Could be Quest form factor but Rift power.

Mobile

- Already huge but could still absorb more of our computing life
- What if every smartphone could become a competent home game console by being dropped in some dock at home?
 - Switch proves that there is a hunger for this sort of thing
- If anything ever kills the console game industry, mobile is the only viable suspect right now

Cloud Gaming

- Some success in this area
 - Playstation Now
- Lots of new stuff starting
 - Google Stadia
 - Xbox Cloud Gaming
- If it works, could be another nail in the coffin of traditional consoles
 - Can just use mobile device, Chromecast, or an app on your TV.
- Console manufacturers very badly want this to be a thing, technical problems are very hard / maybe intractable though

Procedural content

- Just too expensive to build everything by hand
 - Building and foliage generation
 - Parametric animation blending – Uncharted 4
 - Automatic phoneme detection for facial animation
 - Motion planning / generative animations
- To what degree can game design content be made procedural?
 - Works well in a few narrow genres (i.e. Rogue-likes)

Machine Learning

- It's infected everything else, why not games?
- Planning
 - Motion
 - Navigation
 - Action
- Less scripting, more 'brain'
- Like physics, can be very hard to control

Game Design Trends

Telemetry and Metrics

- Publishers and developers can get data on what players are doing
 - Focus development effort on things players do most or where they get stuck
 - Release new versions or updates based on telemetry data
- Dark side
 - Can lead to compulsion loops
 - If you optimise for certain metrics (like “engagement”), you can get games that do well at those metrics the expense of others (like “fun”)
- Vital for some business models like social and free-to-play

Online-first games

- More and more of the huge hit games that can't meaningfully be played offline
 - Destiny, GTA Online, PUBG, Fortnite
 - On the lower end: Among Us
- Even some single player focused games (somewhat) require online
 - Hitman 2 expects to be online all the time even though it's primarily single player, offline downgrades the progression mechanics in various ways

Forever games

- Games being continuously updated rather than making new games
- Strong effect on game design
 - Need to figure out when to leave room for new content
 - Want areas with endless variety (i.e. skins / hats)
 - Makes certain types of single player content hard
 - Hard to do a satisfying conclusion when you need to do more content with the same
 - What if your main voice actor isn't available for the update?

User-generated content

- Photo modes, video capture
 - Important enough that gen 4 / gen 5 consoles have intrinsic support for it
 - Photos actually look good enough to be worth sharing ;)
- SteamWorks: end-to-end support for creating and distributing mods and assets
 - Can actually make money from it
- Level editors, sometimes even on console games
 - Halo Forge, DOOM SnapMap, Hitman Custom Contracts, etc.
- Super Mario Maker, Little Big Planet
- Keeps players coming back without ongoing cost to developer

Business Model Trends

Crowdfunding / transparent development

- A few high-profile games on Kickstarter
 - Elite: Dangerous
 - We Happy Few
 - Star Citizen (Be careful what you wish for)
 - Prison Architect
 - Pillars Of Eternity
- Steam Greenlight / Early Access
- Early access means you are at least guaranteed to get some kind of game to play immediately
- Customers want to influence design, want transparency
- Unreal Tournament – development halted (thanks Fortnite)

Free to play

- AEM
 - Acquire, Engage, Monetize
- Advertisement-funded
- Microtransactions
 - Free for the main game, but pay for extras
- Pay to progress
 - Or at least to progress quickly
- Pay to win
 - Pay for better gear than other players
 - Once the economy of the game is ruined, start up a new server
 - More common in Asia

Subscriptions

- Holy Grail for publishers
 - Predictable long term income
- MMOs on PC have been doing this for a long time
 - e.g. World of Warcraft
- Hardware platforms
 - Xbox Live Gold
 - PlayStation Plus
 - Users can play multiplayer, get free games
 - Recoups the cost of running servers

Content monetization

- Paid DLC
- Paid virtual swag
 - Skins
 - Hats
 - Taunt animations
 - If you buy a taunt animation and kill me and I see it, that means the animation must exist on my machine too ;)
- Small amounts from many players add up
- DLC isn't free to develop
- Taking a cut of player transactions

Digital distribution

- Tower Records has gone out of business
 - Music sales / subscriptions have moved online
 - Apple Music
 - Spotify
- Blockbuster has gone out of business
 - Movie sales and rentals have moved online
 - Amazon
 - iTunes
 - Netflix
- GameStop ... soon



Hopeful parents

E-Sports

- Probably would have topped 1 billion in revenues this year (pandemic soured that)
- Millennials and younger don't look down on it as a cheap copy of real sports the way older generations do, probably poised for a lot of growth
- Some games have significant esports focused features built in (i.e. Overwatch)

Game Voyeurism

- Watching people play games is remarkably popular
 - Twitch, YouTube, etc.
- (Can be) great for publishers to
 - “Free” publicity (not always good though)
 - YouTube personalities are sometimes trusted more than mainstream reviewers - “no filter”
 - Getting your game mentioned by Yogscast or PewDiePie can spike sales
- Games are starting to offer Twitch integration
 - Rise Of The Tomb Raider allows Twitch viewers to select between difficulty mods for the streaming player

Summary

- Lots of stuff happening in the industry
- Some trends are very clear:
 - Multiprocessor hardware
 - Digital distribution
- Some less clear, susceptible to laws / player takeup:
 - Social games
 - VR / AR