

GDC 2019 Visual Effects Artist Roundtable Summary



Apologies for the *massive* delay getting these notes out. Better late than never, eh?

I like to use this short preamble for shout outs to all the amazing people that made GDC 2019 so special for our little industry, and no one deserves a more belated OMG THANK YOU than **Mark Teare** who made VFX Boot Camp 2019 happen. Thank you, Mark, and all the incredible speakers that contributed their time and inspiration. It was awesome.

Another very very important, much belated thank you, goes to the party planners behind our most epic yet Real Time VFX + Tech Art combined meetup. Especially **Matt Oztalay, David Johnson, Mark Teare, Jason Keyser, Deanna Johnson and Keith Guerrette**, who pulled together *last minute magic* to make this real.



Of course none of it would matter if we didn't have the best sponsors in the industry. Boom, here they are:



Last but not least, thanks **Jason Keyser** for being my partner in the Roundtable sessions and to **Mike Lyndon** and **John Lytle** for helping me out with these notes.

The biggest complaint of 2018, addressed.

In 2019 we successfully navigated having the VFX Boot Camp and Technical Art Boot Camp on consecutive days. This is a trend that will continue.

DAY 1: General Topics

How do I get VFX involved in production sooner?

It's harder when VFX comes in at the end of a production cycle. Not much of a voice. How do you get

involved in the pipeline sooner?

- Work with 3D artists to sell ideas. Add value to the broader art efforts.
- You can do this by becoming more of a generalist yourself, or teaming up with someone else who has the right skillset.
- Build connections to people (designers/artists) to work earlier in the pipeline. Communicate!
- Get the VFX lead into the right meetings early on.
- In feature teams, VFX is included in concept art. Production dislikes feature teams because timing is harder to determine.
- Educate people that the key to good fx is early communication around ideas and concepts
- When faced with tight timelines, start with kit bashing. Front load that so you have time to include audio and other disciplines.
- Example from Guerrilla: Split VFX team in half. Technical team is involved in every feature of the game.

What does cloud gaming mean for VFX?

- Its like getting a new christmas tree... *that's on fire*
- We might be able to put multiple virtual machines behind a single game experience.
- If you've done multiplayer, you know sync issues are a problem (Replication, etc...). Cloud server removes that limitation
- Increased power for large scale simulations (crowds, etc...)
- Shrink the gap between realtime and film based VFX- Character VFX has a lot of potential.
- Use AI in ways never before possible
- Even with additional rendering power, there will still be games that focus on art
- Don't use cloud performance to achieve film solutions.
- More performance could mean people focus on technical achievements and the art may be lost.
- You could use the power for fluid sim. Machine Learning.
- Might be ways to use AI / ML to optimize film quality VFX for real time. Use game assets as a training set. and then have a game get closer to film quality using training data.
- ML is powerful, but be aware neural nets take a lot of data and time to train. Check out [Jeremy Cowles Unity ML](#) talk.

What things do you wish you knew that would help with your VFX work?

- Check out Virginia's talk on continued learning. [Growing as a VFX Artist](#).
- If you see a great effect in a movie or tv show, reach out to the artist. Ask if people are willing to share techniques.
- Studio Culture:
 - Changing seats quarterly. Try to find inspiration on topics by teaming up with people that also share those interests.
 - The first hour of the day is dedicated to learning-Youtube, tutorials.
 - "Research Friday": Pick a topic, try new things.
- Cinematic color grading effects for real time
- Reference phenomena that are not typically represented in games
- Study Math, Programming, Houdini, Krakatoa

- Work with other teams (animation, etc...) for inspiration
- Multiple folks brought up using teammates for inspiration
- Participate in VFX challenges
- Deliberately use tools that you don't normally use at your studio
- Attend hackathons with other developers
- Push the boundaries of what software and art are
- Give yourself your best time.
 - Beware of burnout
 - Learn ways to better mentor new artists
- Hard problems are solved outside of work. Let your subconscious mind help out.
- Build a habit that helps deal with times of low motivation

DAY 2: VFX through an Artistic Lens



How do you put character into your fx?

- Consider treating your fx like a super hero
- The feel is more important than the visuals
- Intent. What is this effect trying to communicate
- Create a narrative for your FX. If you don't have a writer, work with your art director

How do you parse the language of feedback. Favorite strategies? How do you figure out what people are actually talking about.

- The best response is a question in return
- Drawover in photoshop with notes

- Ask them to make sound effects of what they want. “Kablam! Kachow!” Encourages deeper conversation. Make it fun & move forward from there.
- A lot of people don’t want to give feedback without understanding how fx are made.

How do you build an FX team in a small studio.

- Whoever you get to work on FX make sure they understand the ramifications. Overdraw, etc...
- Consider going with an outsourcing team
- Explore uplifting your programmers too. From that combination sometimes great visual fx will pop up.
- A nice UX experience requires VFX, but UX teams sometimes have no VFX. We used mediocre FX to encourage leadership to get support for real VFX.
- UI/UX can transfer over well to VFX.
- Lots of other people to work with. [Beyond-FX](#), [Undertone FX](#), [FXVille](#), etc...
- FX is first line communication with the player. It shouldn’t be an afterthought. It’s an important thing to have honed as a skill.

Sources of inspiration?

- I’ve been using modern art and it’s been working surprisingly well. Are we repeating ourselves using the same games again and again and again?
- Pinterest boards of sculptures and artists. We don’t want to copy other games. Shapes in sculptures.
- [opinion] VFX artists shouldn’t do the art. Should start from concept art / concept video. If the fx artist has to produce something with the technology in a timely way and doesn’t have that, they will lean on less creative tools & tricks.
- In terms of inspiration, it comes down to you. What makes you feel something. Emotions? Empathy? Our job as fx artist is to connect the dots.
- Concept art can be great for inspiration, but we need to be good communicators with concept artists when we can. I look at fx art as acting. How do I want this to feel as an embodiment of something. I am an actor. I’m trying to embody my acting, in my effects.
- Polymorphic composition. VFX Concept art. Fractals. High speed photography. Slow mo guys. Double exposure photography.
- Every GDC talk. E.g. conveying rhythm through the sense of space.
- Studying biology, seeing what animals are doing and convey it in FX. Mushroom parasite that grows on ants. Zombie ant.
- Art without textures. We redefined our relationship with color. Color and gradients and shapes became so much more interesting. Imposing limitations to distil your work.
- I like to get reference from stairwells & coffee machines.
- You’re limited by your life experiences. You have to do as much weird shit as possible.
- Try starting with sound libraries, sound FX. Timed to the duration of the FX. Instead of visuals I work off of audio.

What is the one thing for new VFX artists that you think is missing when you look at people new to the industry.

- Having a story for your FX. Lots of people are missing this, old & new.
- Timing. The way the whole thing flows. I hate it when smoke gets smaller at the end of its lifetime.
- A bunch of stuff just on the screen.

- When you're a student you don't have a problem to solve, and it's hard to evaluate work that has no problem. I like to see hardcore natural phenomena, cause it's solving a more concrete problem.
- When people have broken their fx down into its constituent parts balanced together. Did they do the analysis and dissect it. With weight, timing & scale.
- 3D packages have sophisticated bloom, but that does not mean everything should be at intensity 1000. Keep your levels in mind.

DAY 3: VFX through a Technical Lens

Any tips for how to parse white papers?

How do I learn mathematical notation, and other skills needed to apply white papers?

- Check out Wikipedia, Wolfram Alpha. Your friendly engineer.
- Not a white paper, but check out [keijiro's github](#)
- Note: about 15 of 50 people in the roundtable were currently referencing white papers in their work.
- Anecdote: The rain system in assassin's creed was inspired from a white paper. Make a mockup with render targets. Create a prototype and give it to an engineer.
- Use a website that visualizes 2D equations. Example from Inigo Quilez [here](#). Also see [desmos.com](#).
- Maybe we want a github repot for real time VFX?
-

How are people using effect graphs like Unity's VFX Graph and Unreal's Niagara?

- Day to day, you just want to get stuff done. Niagara does a good job of encapsulating effects.
- Frostbite example: I use it for programmable behaviors. Much more custom FX like crowd simulation, storm troopers. [See this talk from last year and be inspired.](#)
- Good for solving noodly problems. It takes longer for initial effect setup and creation, but you can front load the work and move much faster later on.
- Learn from the Houdini workflow. Front load the work by building a procedural system. Done right, you can generate a large amount of VFX quickly down the road.
- Lots of control over variations by reusing base systems.
- Question: Has anyone run into performance issues on CPU?
 - Surprisingly not. Managed to run on mobile.
- Question: Has anyone done LOD's in Niagara?
 - A cool thing is with scriptable effect systems you can tie directly into the camera to drive LODs, from within the effect graph itself.
-

What tools do you use for flow maps?

- See <https://jangafx.com/>.
- [Flow Map Painter](#).
- Houdini
- One person was working on a UE4 flow map tool
- Random tools in Unity

- Question: how many people are using optical flow maps on their textures?
 - About 10/50
- Check out [Slate](#), Houdini or [Twixter](#).

How do I get my studio to adopt Houdini if they don't want to pay for it?

- If you can demonstrate that it saves a man month of time, there's your license.
- Grad students get a 6 month
- You can go really far with the apprentice version in some cases. Note it does not allow you to export.
- Show management vimeo videos and point out the salary of an engineer
- Don't handicap your artists with antiquated tools

How are people maintaining tools and VFX across projects?

- [Undertone FX](#) is rolling their own system for portability between projects
- [FXVille](#) clients own the assets, so instead they focus on workflows that can be reused.