

GDC 2017 Visual Effects Artist Roundtable Summary



Here are assorted notes from the 6th annual VFX Roundtable at GDC 2017. This year it coincided with the first ever [VFX Boot Camp](#), which elevated the week to a new level. PLUS: 2 parties. What more can you ask for. (Hint: 3 Parties!)

Special Thanks!

Huge thanks to Boot Camp co-organizers & speakers Christina Wun, Keith Guerrette & Jason Keyser. Speakers Hadidjah Chamberlin, Andreas Glad, Nadab Goksu, Alim Chaarani, Fred Hooper, Sarah Grissom, Andy Lomerson and Matt Radford. GDC coordinator Megan Bundy. Fearless leader & instigator of GDC boot camps Jeff Hanna. Thursday night's VFX Mixer mastermind David Johnson. Tuesday night's VFX + Tech Art party planner Matt Oztalay (along with our incredible party sponsors PopcornFX, SideFX & Rigging Dojo)!

Of course, all this is meaningless without the community participation that makes it awesome every year - and this year was no exception. THANK YOU!

GDC Pass Alert

Many people were confused by the GDC pass options this year. Tutorials, summits & bootcamps did not get you into Roundtables. "Main Conference" did not get you into bootcamps. "GDC All Access" did not get you into VRDC. If you wanted access to the VFX Boot Camp and the VFX Roundtable, **GDC All Access** is what you needed. Next year... who knows. We'll need to collectively do some research to try and get this right.

I've passed this issue along to GDC folks so they're aware of it (if they weren't already).

The biggest complaint of 2017

Why is the [VFX Boot Camp](#) scheduled on the same day as the [Tech Art Boot Camp](#)!?

I have confirmed that next year they will ***not*** overlap.

Roundtable Structure

In terms of attendance, we had the biggest turnout yet, both in the boot camp & the roundtables. Because of the larger numbers, limitations in the current boot camp format are starting to show through. In addition, consistent feedback from last year was that the "Art" of vfx tends to get steam rolled by the "Tech" of VFX.

Day 1 of the roundtable was largely focused on these “meta” questions and others like them. Here are the changes we’re making and I think we’re already seeing a big improvement.

- 1) Every year the VFX Boot Camp will have sessions dedicated to the **art** of VFX. This year we had Jason Keyser & Hadidjah Chamberlin’s excellent **Artistic Principles of VFX** and hit on this topic again in the **Rapid Talks** that Nadab Goksu organized. We’ll keep this up next year.
- 2) Day 1 of the VFX Roundtable will be focused on anything people want to talk about. My hope is it will largely be a continuation of topics from the boot camp.
- 3) Day 2 of the VFX Roundtable will be focused on the “**Art of VFX**” (and labeled in the schedule).
- 4) Day 3 of the VFX Roundtable will be focused on the “**Tech of VFX**” (and labeled in the schedule).
- 5) Where possible, I’ll bring up guest speakers. This year Jason Keyser did an amazing job moderating to the “Art of VFX”!
- 6) We tend to get through about 10% of the material people bring to the roundtable. This year we tried something new - **Lightning Questions!** Here’s how it works:
 - a) Anyone asks a question
 - b) We look for someone to raise their hand and commit to answering that question on realtimevfx.com.
 - c) We move on to the next question. After the roundtable, we delight in answers on the forum (hopefully! It’s a grand experiment).

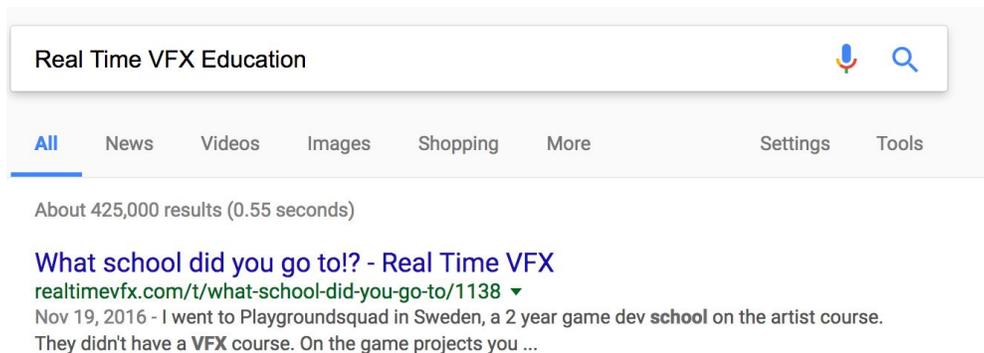
DAY 1: General Topics

Usage of facebook.com/groups/realtimevfx vs. realtimevfx.com

There were some questions over how to differentiate the FB page from realtimevfx.com.

Some insights:

- RealtimeVFX is archivable & searchable. Content that will directly benefit future YOU or another future VFX artist really belongs there. It means this can happen!



- Facebook is really great for stream of consciousness, community building, hangouts, and other activities more casual in nature.
- It’s also common to post in both for the best of both worlds.
- Loosely related: the VFX Contests on realtimevfx.com *are great!!*

Realtimevfx.com Requests

Keith Guerrette’s Boot Camp presentation was a call to arms for our community to step up and drive the

future of realtimevfx.com. That platform is open, extensible and ready to grow in similar ways to [Jason Keyser's Jobs Board](#).

Some possible additions to realtimevfx.com that came up during the roundtable are

- A section for students. The pro / veteran developer topics can be intimidating to newcomers.
- A “getting started section”
- A portfolio presentation mode that allows our community to present their work in the best possible light. Similar to [artstation.com](#). We want to showcase Real Time VFX, inspire students, and show off our own accomplishments.

All these ideas require web development help. Know someone? Contact [Keith](#)!

Visualization Topics

What methods are people using to visualize their effects. Geometric data (uv's / vertex colors / etc...), overdraw, shader cost, culling, levels, etc...

- In engine post processing tools that allow you to render B&W (luminance) & flip the screen up down or left right. This allows artists to leverage traditional art techniques to tune their work.
- Some attendees were using uber-shader branches to render data visualizations of various properties.
- [Nvshaderperf](#) is a useful command line tool
- One attendee had a tool that dumped out thumbnails of every texture used in a level
- Several attendees had tools for filtering what effects were shown in engine. This let them filter through level fx, character fx, impact fx, etc... to identify perf bottlenecks.
- [RenderDoc](#) appeared to be the most popular profiling tool in active use

Roundtable Structure

I covered this question in the intro to these notes. We spent a while (maybe too long) discussing what roundtable structure would work best for the rapidly growing group, and what people want out of the bootcamps.

The big takeaway was to target day 2 for “art”, day 3 for “tech” and try “Lightning Talk” question rounds to keep things focused and moving as fast as possible.

Hiring

We try and regularly gauge the health of the VFX talent pool. This year it was the usual story: approximately **four times as many people looking to hire vs. the number of people looking for work.**

DAY 2: The Art of VFX



Day 2 was focused on The Art of VFX, and our own **Jason Keyser** stepped up to lead the second half of the discussion. He did an incredible job taking things in a new direction and keeping the conversation focused on the artistic side of the spectrum. Thanks Jason!

Art Direction for VFX

Suggestions, ideas, guidance for art directing VFX? What are effective techniques for providing art direction to VFX artists?

- It was agreed that concepts in VFX are rare. Most people used concepts as inspiration rather than a blueprint for the final look.
- Grayscale composition can be a powerful art direction tool (see Jason & Hadidjah's talk)
- Consider a VFX Style guide
- Pinterest is a nice way of collecting & sharing material
- Check out the talk [Art Directing VFX for Stylized Games](#)

This question led to the related topic of reference libraries below.

Reference Libraries

Some interesting ways people are using reference libraries:

- Check out <http://framexframe.tumblr.com/> for an interesting method of sharing work
- Use a **second computer**. That second computer's sole purpose is to play back high quality reference video.
- One attendee had reference videos running on 4 walls; 4 big monitors playing images/reels/vfx all day long.

Related question: how do you grow & maintain your video library?

- VLC downloads from YouTube, or keepvid.com for new content
- <http://www.virtualdub.org/> for frame stepping
- Label & upload all material to a public server. In this case the suggestion was to downres to 480p to keep the size manageable.
- Many people argued for video tagging as the primary method of organization.
- Check out ref-fx.com

Educating Students on The Art of VFX

Ideas for helping to educate students and introduce new talent to the wonders of real time vfx.

- We need a standard curriculum, and we need to advertise it. This conversation [blew up on realtimevfx.com](#) after the roundtable. Check it out!
- There was some back and forth over the merits of university education (paid) vs. self taught (free)
 - Some concern that universities don't have time for a "major"
 - Comment: "Beware of university programs. \$\$\$ vs. reality can be a painful realization."
- Should we encourage "teaching the tools" or "teaching the fundamentals"? i.e. teaching Unity vs. teaching artistic principles of design & color theory.
- Note that animators and an animators education can make a great VFX Artist.
- History (and the history of animation/stop motion) should be part of any curriculum.
- For students, it takes a lot of effort and courage to ask for help. We need to make it easier and proactively share our knowledge.
- "Everyone in this room can be part time faculty."
- Idea: Mentor system. Use the forum to match students up with mentors for 1:1 education.
 - This is really great for international students.
 - "Mentoring made me know my @#\$#@ better. It was about 3 hrs total per semester"
- Lack of education is a problem, but there are many vfx jobs out there and students aren't aware of them. People should be able to find us. Schools should know how many positions there are.

- **The hype does not match the need.**

Demo Reels Do's and Dont's

- Keep it short & sweet.
- Better breakdowns
- Say what you actually *did* on the VFX
- Demo Reel is not the best place to be vulnerable. Use the forum for that.
- **Request: Boot Camp talk on how to make a demo reel.**

DAY 3: The Tech of VFX

Motion Vectors for Flip Books

What techniques are people using to generate motion vectors for flip books.

- Slate ([FaceDownFX](#))
- Nuke
- Check out the [Forza talk on skies.](#)
- Out of ~50 people, 7 were actively using motion vectors in flip books.
- **Cool idea:** In illustrator use the “dissolve map” tool to create shapes that can be nicely animated in the shader for stylized effects

90FPS VR

How do we do it well?

- Opaque geometry.
 - Use opaque geometry everywhere you can (ideally... no transparent geo)
 - Try and use a core, opaque mesh for the bulk of a volume. You can still add transparency on the edges.
- Check out the Siggraph 2016 ID tech talk “The Devil is in the Details”. Slides and Powerpoint available [here](#) (along with a gold mine of other great presentations).
- **Pro move:** Different particles can be composited into the scene at different resolution. This, combined with clever batching and even more clever sorting, can help keep your transparent effects from tanking the framerate. Naughty Dog has magical wizard sauce for this, so if you're curious to know more send them whiskey & cookies.

Trails

Suggestions on how to make great looking trail effects? In particular this question was aimed at eliminating the gnarly sharp edges that appear when sweeping trails across quickly moving, rotating objects.

- Check out [Better Trails](#) (a Unity plugin). People had good results.
- Many folks were simply authoring trails in geometry via Maya/Max. By careful placement of anchor points in the animation, you can get nice looking results. Also if the pipeline is built into the character animation flow, then changes to the animations can automatically update the generated geometric motion paths so they match.
- A clever geometry shader approach was hinted at ;) Ask about it on the forums! This sounds like a task for geometry shaders.

Audio Reactive Help

A question was asked about integrating audio reactive elements in VFX. Some starting points:

- [Tilt Brush Toolkit](#) (shameless plug)
 - [Example video](#)
- [Keijiro's Reaktion Plugin](#)

The Tech of Stylized VFX

Examples of tech that helps make stylized VFX possible?

- Check out the talk [Art Directing VFX for Stylized Games](#)
- Make an “explosion sphere”!
 - A sphere with cleverly mapped UV's such that when you animate the UV's correctly, you can create the classic anime effect of smoke/fire flaring up & out
- Check out <http://shaderbits.com/>.
- Try using Voronoi Distance maps. Can be done in the [shader](#).

Lightning Questions!

Unfortunately, the lightning questions went by so quickly I wasn't able to capture them. Will try and get them on paper next year so we know what to go looking for on the forums. Ideally, we'd tag them so they're easy to spot.

That's it - catch you next year!