



# GROWING AS A VFX ARTIST

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Lead VFX Artist at id Software

**GAME DEVELOPERS CONFERENCE**

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# The goal - what this talk is about

- How I started and got here, failures and what I've learned
- How I keep growing and stay passionate
- Practical learning examples
- What I would like to achieve in this talk is to **inspire curiosity** in you about all the wonderful things you can find and learn, and how this can be applicable to your job, or entire career. And also **spark passion** and love for what you do.

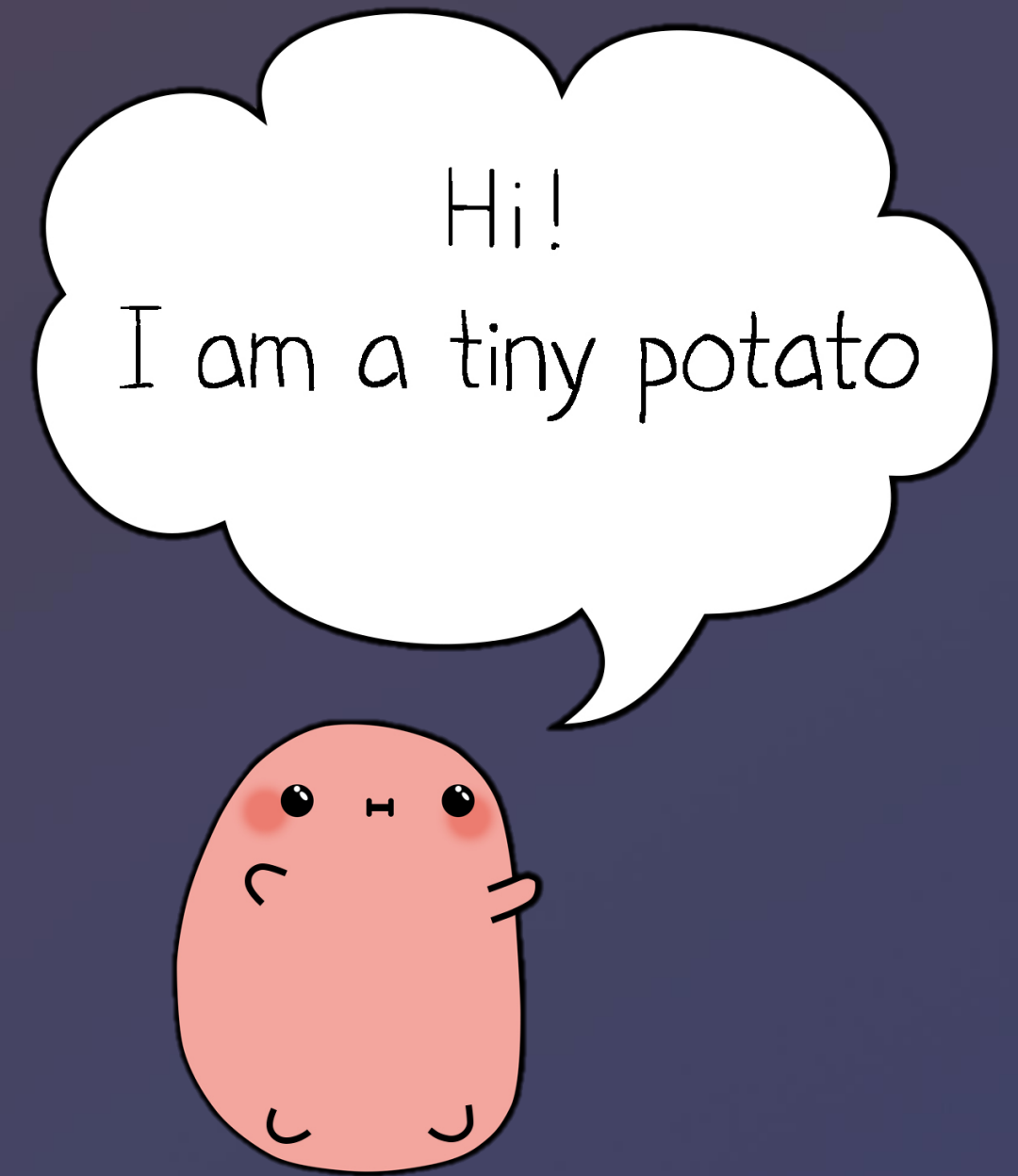
# Introduction

- I'm a vfx artist with 15 years of experience in games
- Currently working at id Software on Doom Eternal as lead vfx artist



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# Beginnings

- First PC at 17
- Spent my life savings
- Discovering CG
- First website





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- First 3D game



# Learning English

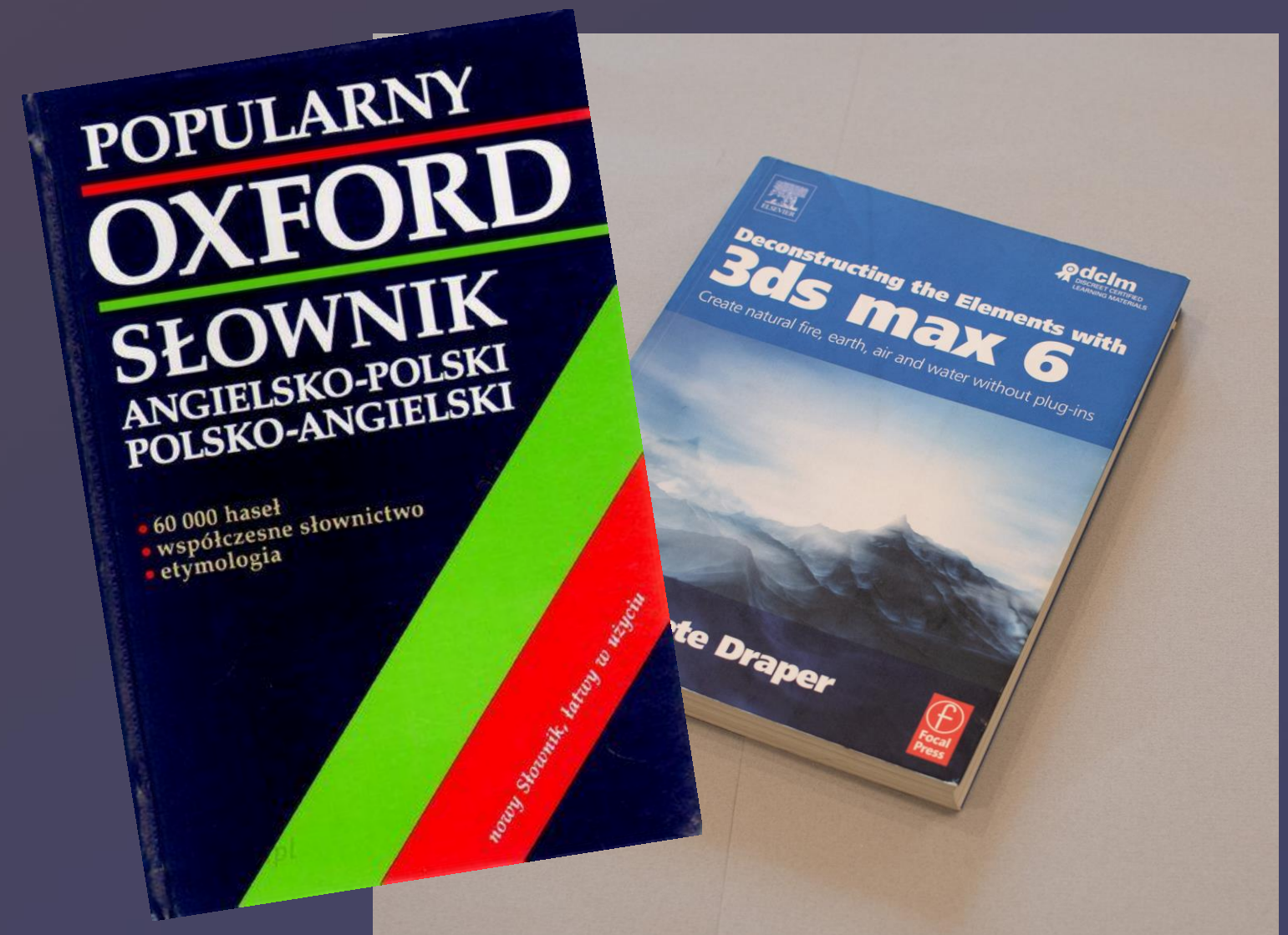
- Access to knowledge
- No online tutorials
- First book





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# Learning English

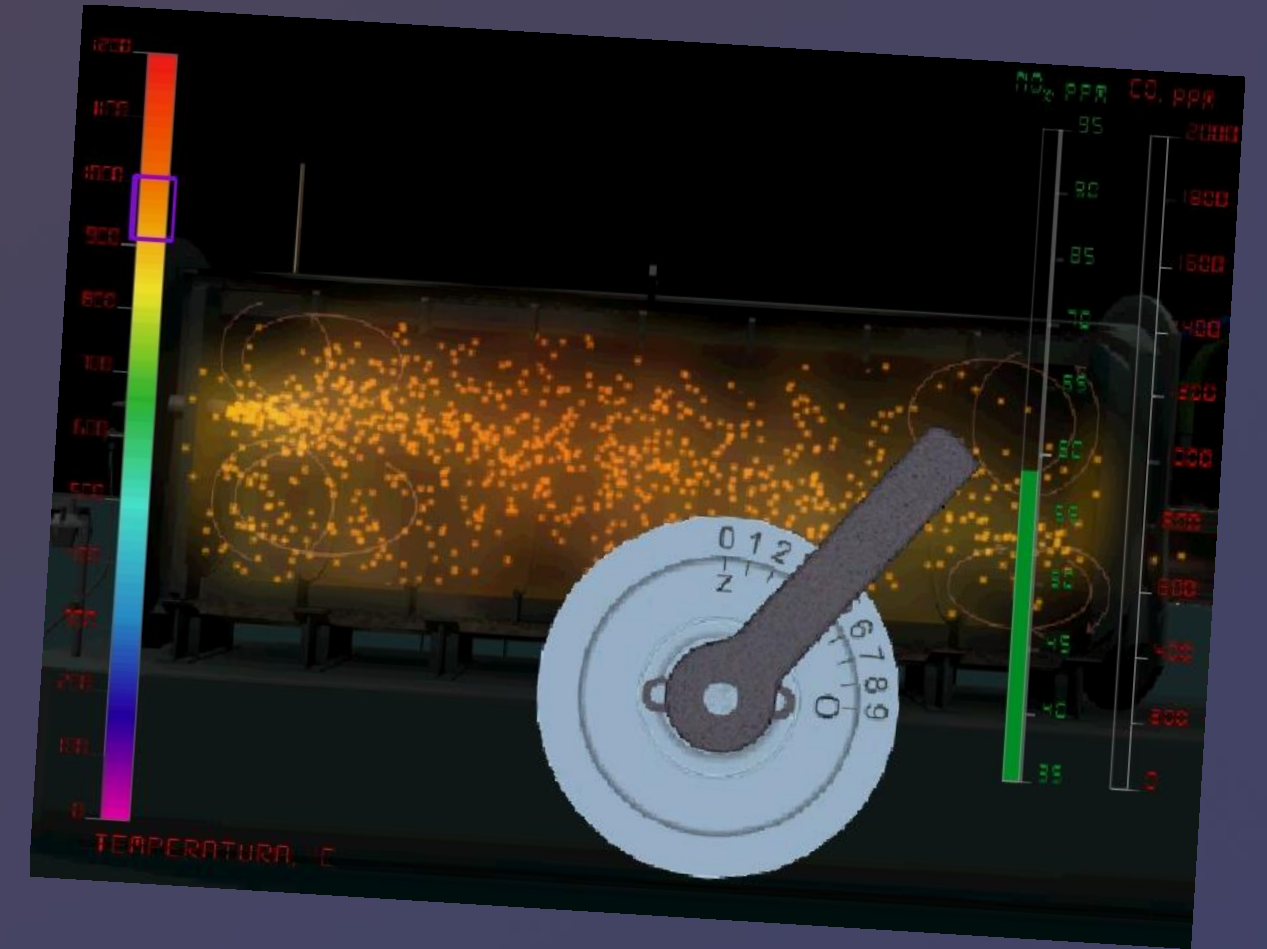
- Access to knowledge
- No online tutorials
- First book
- Dictionary
- Other favorites





# Education

- Not “Poor artist”
- Transferred college to save on commuting time
- Started earning money
- Higher education invaluable for immigration
- Master thesis – burning visualization



# First serious interview

- Demo reel – personal project
- Made better art and had a great time
- Without constraints – deadlines, direction, proprietary tools, performance limitations
- My demo reel “spoke” for me
- Got hired and shipped my first AAA title





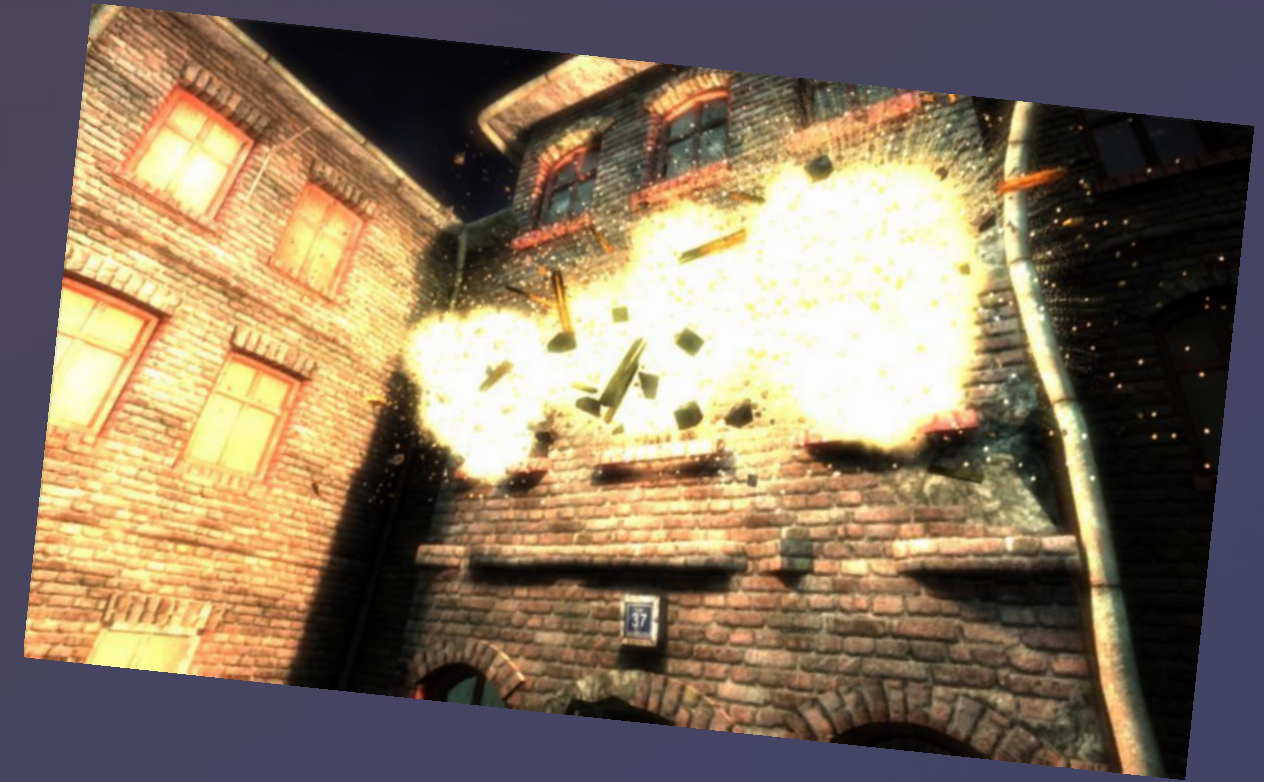
# Dealing with stress and struggle

- Proprietary tools and Maya
- Feeling like an idiot when asking for help
- Giving and receiving feedback was terrifying
- Surrounded by better artists
- Struggle means growth and progress



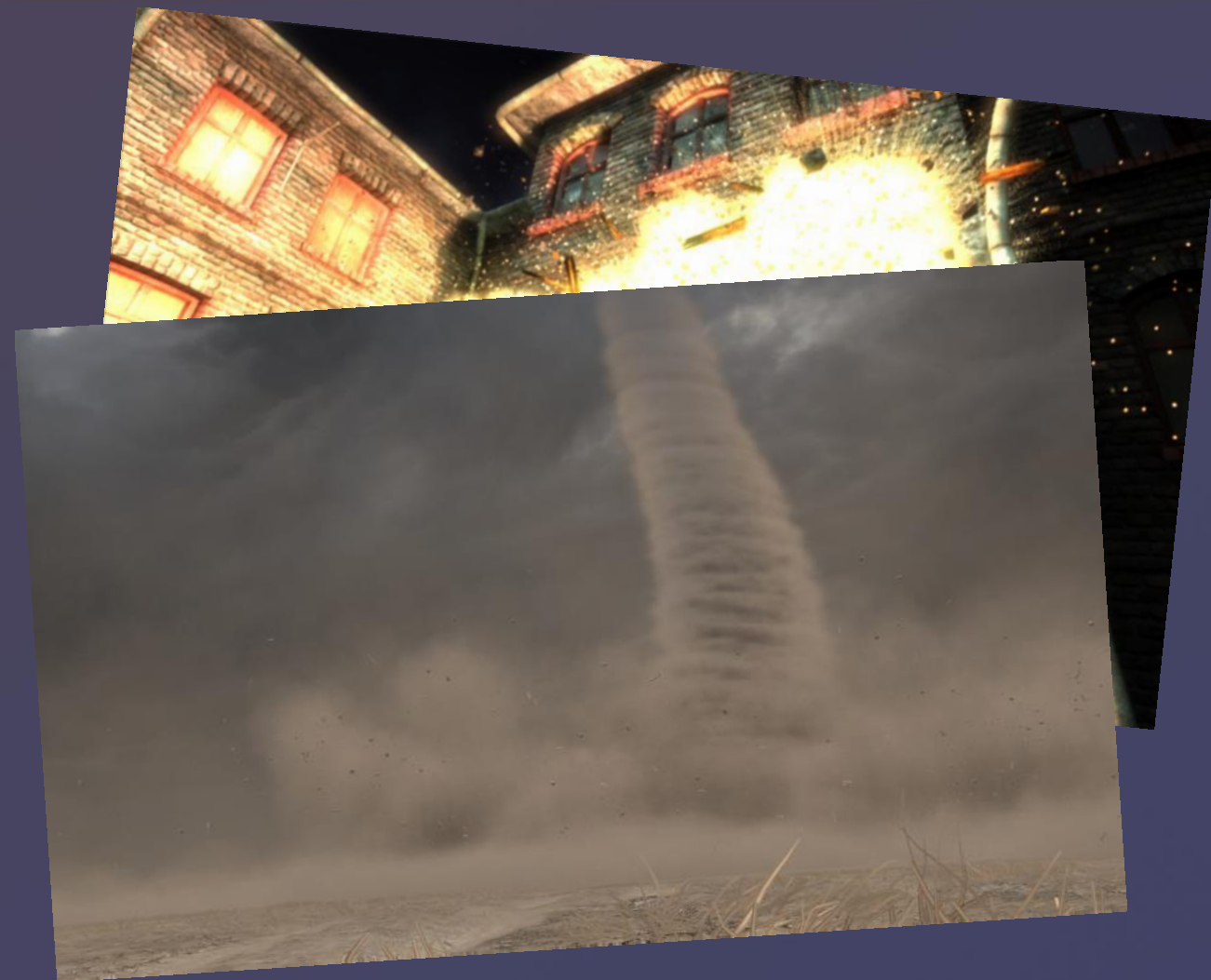
# Transitioning from modeler to vfx artist

- Learned PFlow and FumeFX, fluids in Maya, Krakatoa, TP, Realflow



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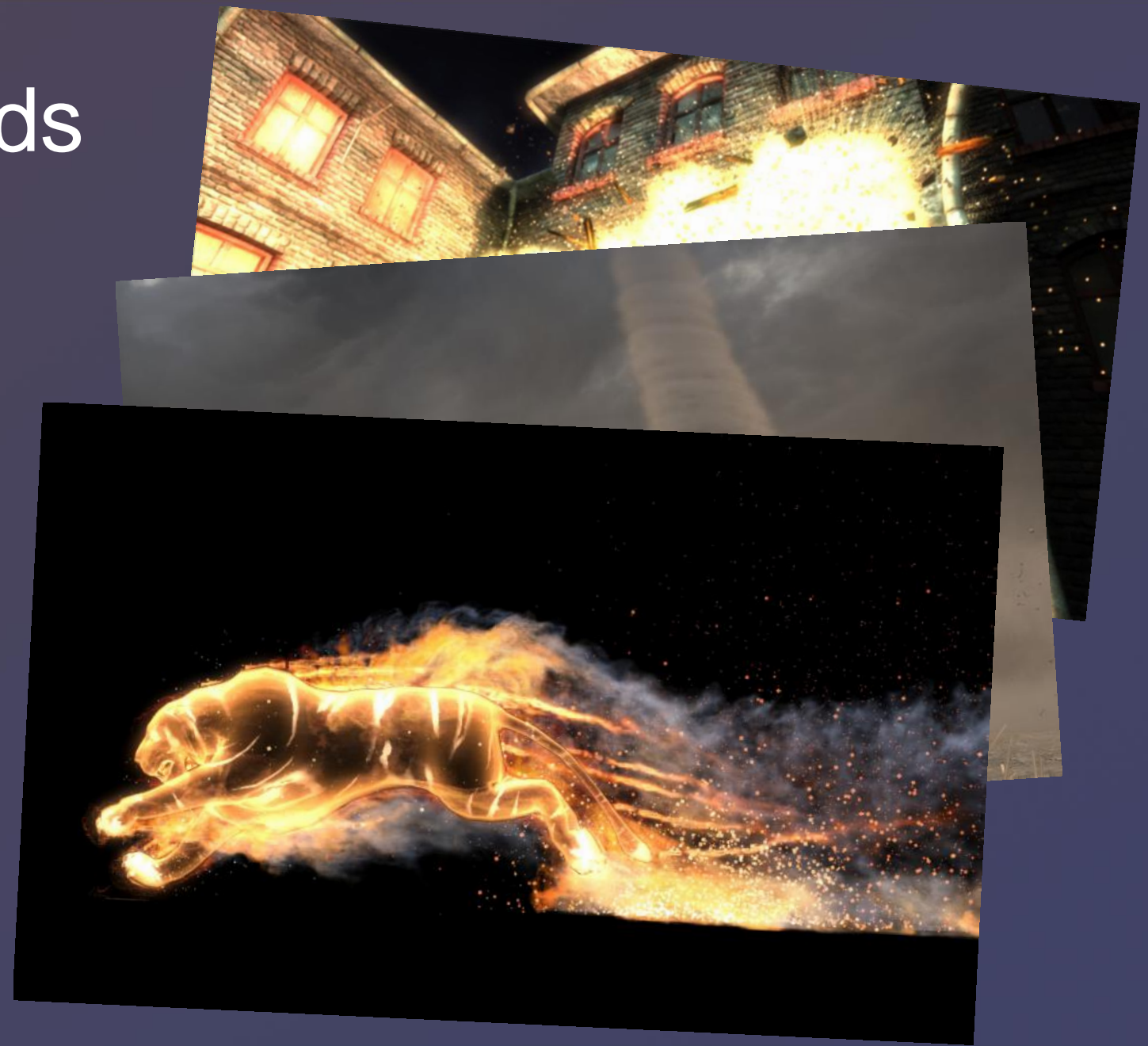
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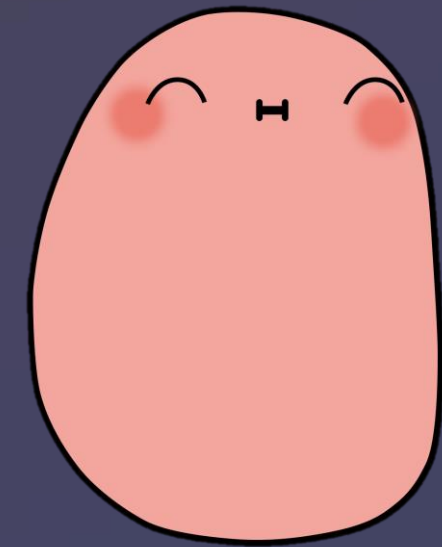
- Learned PFlow and FumeFX, fluids in Maya, Krakatoa, TP, Realflow
- Training for film and CG
- More personal projects
- How far can real-time vfx be pushed?
- Texture is half of the success





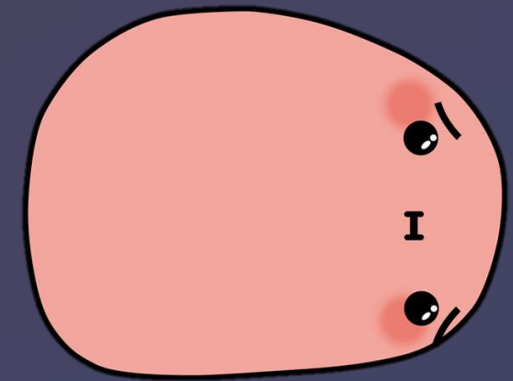
# I got a vfx artist dream job!

- Excited at the beginning
- Used to the pressure of fast paced dev



# I got a dream job!

- Excited at the beginning
- Used to the pressure of fast paced dev
- Bored during downtime
- Grew more restless and frustrated
- Can't just sit around and make particles
- Felt like I needed a challenge





# New challenges

- CG competitions



# New challenges

- CG competitions
- Personal projects





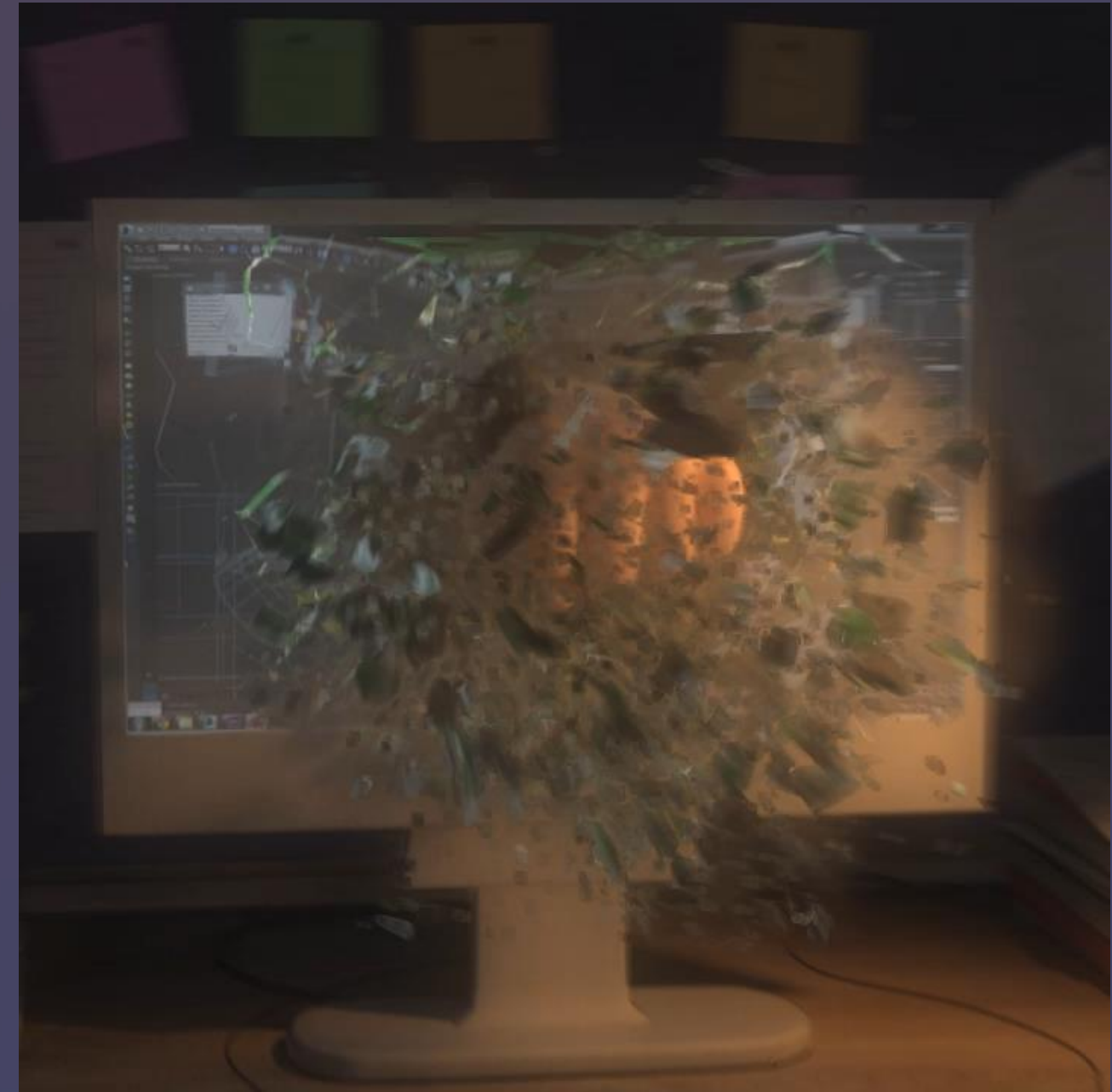
# New challenges

- CG competitions
- Personal projects
- Learn new skill or software
- Connect with other artists
- The same thrill - without quitting



# Passion, workaholism and burnout

- I shipped three AAA titles in three years!
- Passion is a part of the job
- CambridgeDictionary.com: “Something that you are strongly interested in and enjoy”
- Dictionary.com: “Strong and barely controllable emotion”





# Passion, workaholism and burnout

- “Passion is a powerful driving force. It can spark a fire in you that’s often difficult to extinguish.” - Sweta Patel
- Passion is like the ocean – it can take you far places, but it can also drown you if you don’t respect it



# Passion, workaholism and burnout

- Careful to fuel your passion the right way
- It's like a hobby - invest time and money in it, but not all of it, or it will turn into an obsession
- Know when to stop in time, to always want more
- Use a pomodoro timer and take breaks
- Working in the entertainment industry is supposed to be fun





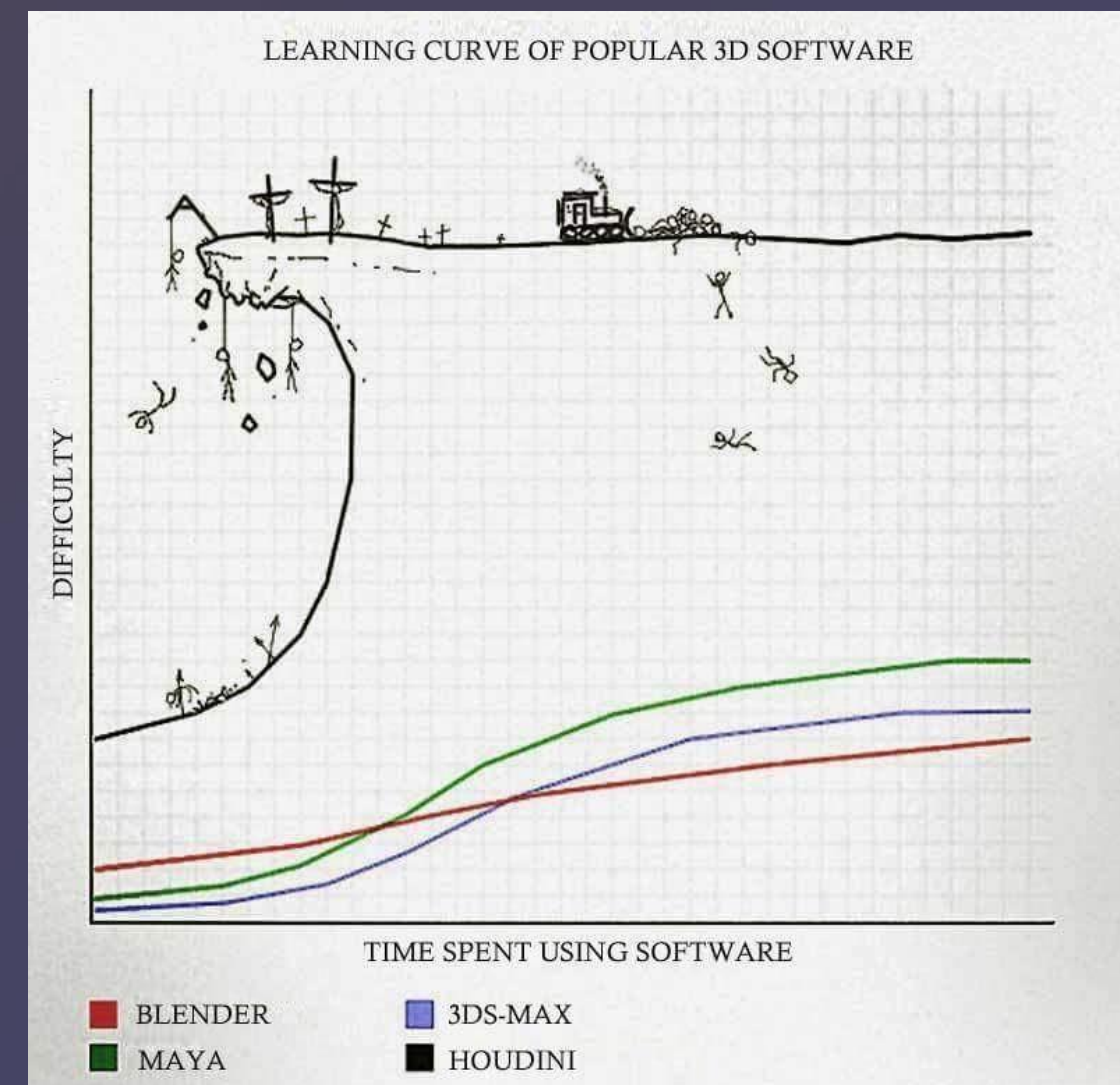
# Boundaries and expectations

- Think back to when I first started – what excited me then
- Focus on what's important – this is easier from a manager's perspective
- Prioritize and let go – perfection is the enemy of done
- Work smarter not harder
- Discover procedural workflows



# Current challenge - Learning Houdini

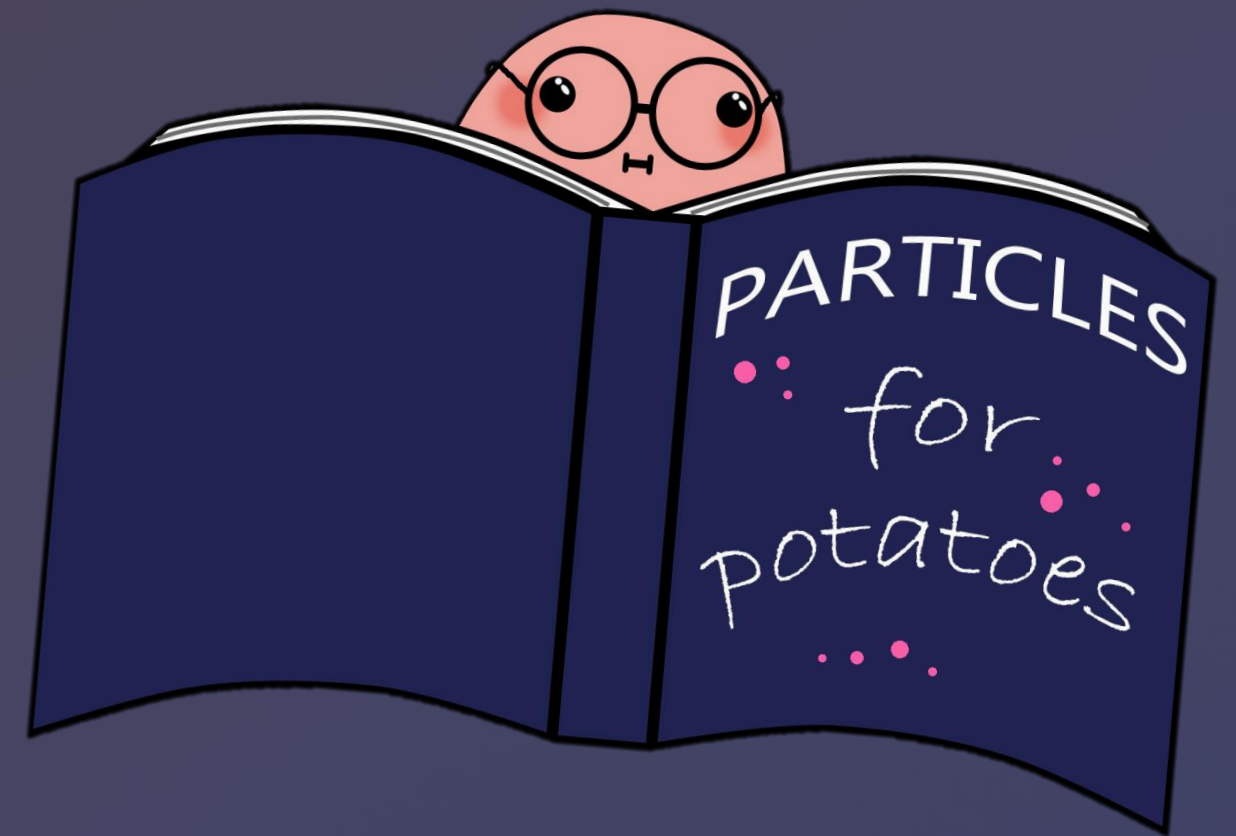
- Where do I even start?
- Justify spending on expensive PC
- Finding time for learning
- Tutorials that I can follow and that don't take eight hours to complete: Entagma, Steven Knipping, Johnny Farmfield, Houdini Wiki





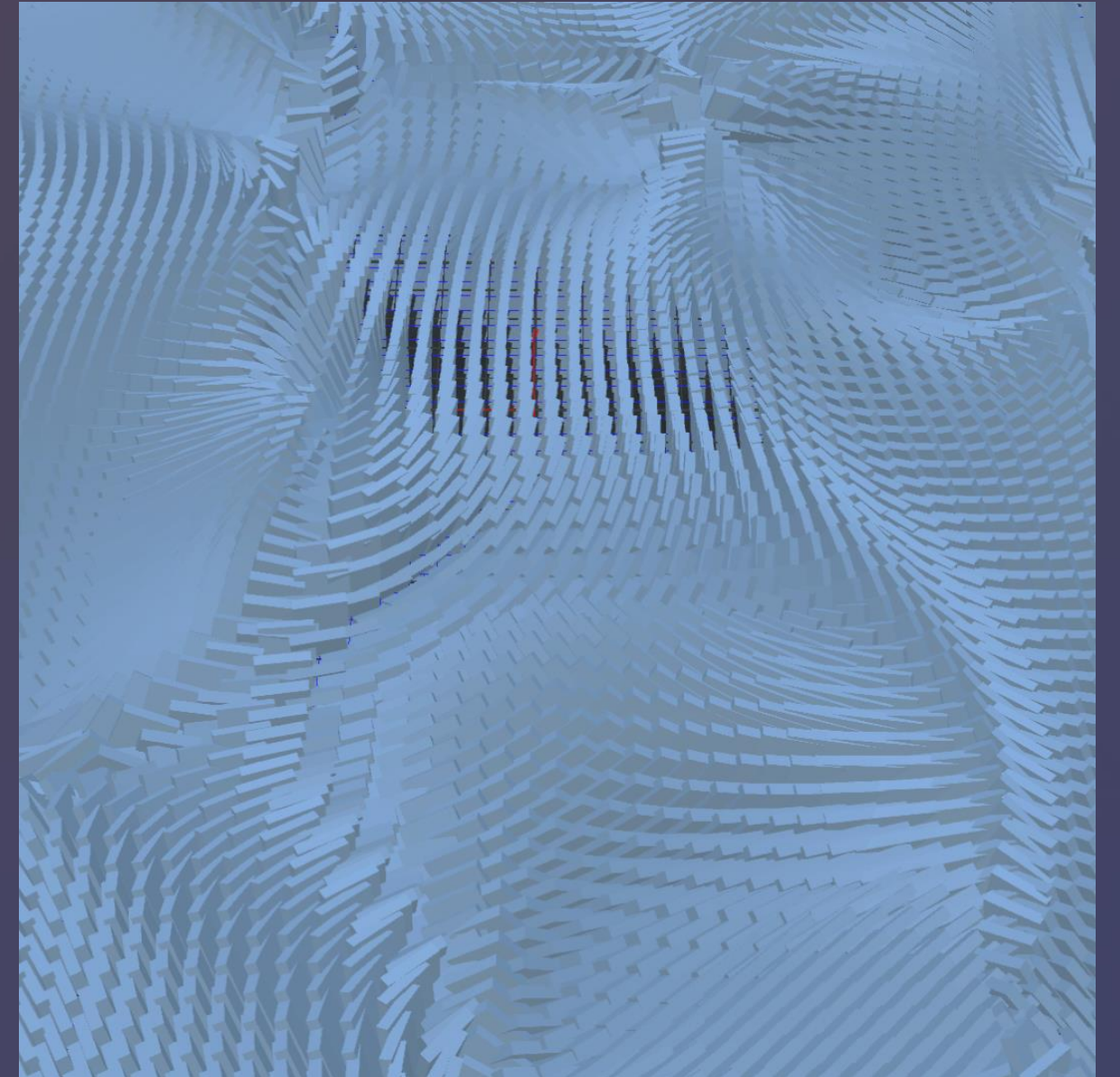
# Learn how to learn

- Learn by doing – use tutorials to become familiar with a concept
- Don't stop there - take it further
- See how it fits in a different context
- Blend concepts together into something unique
- Enjoy your creations



# EXAMPLE 1 – take it further

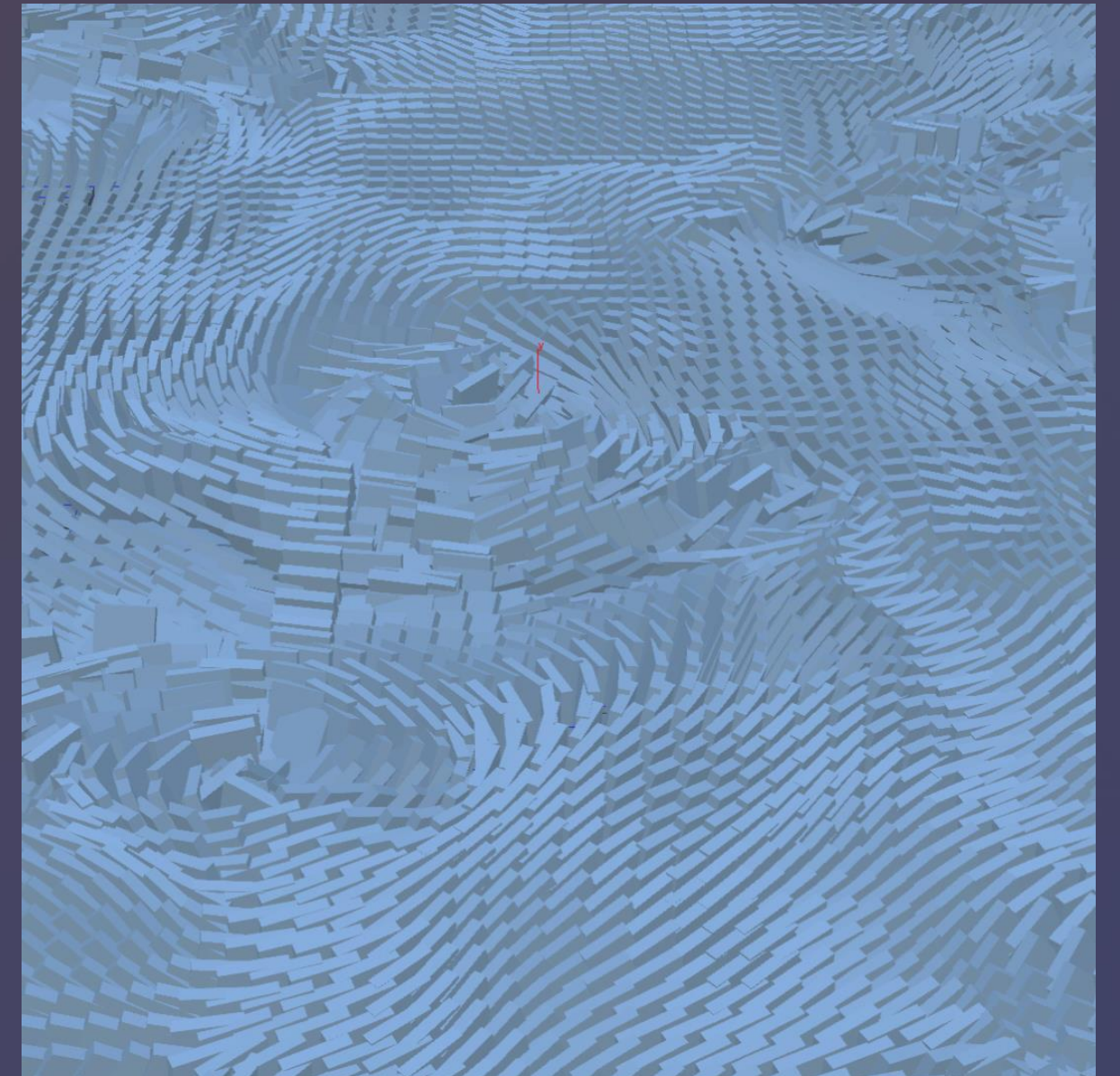
- Started with a tutorial from Entagma





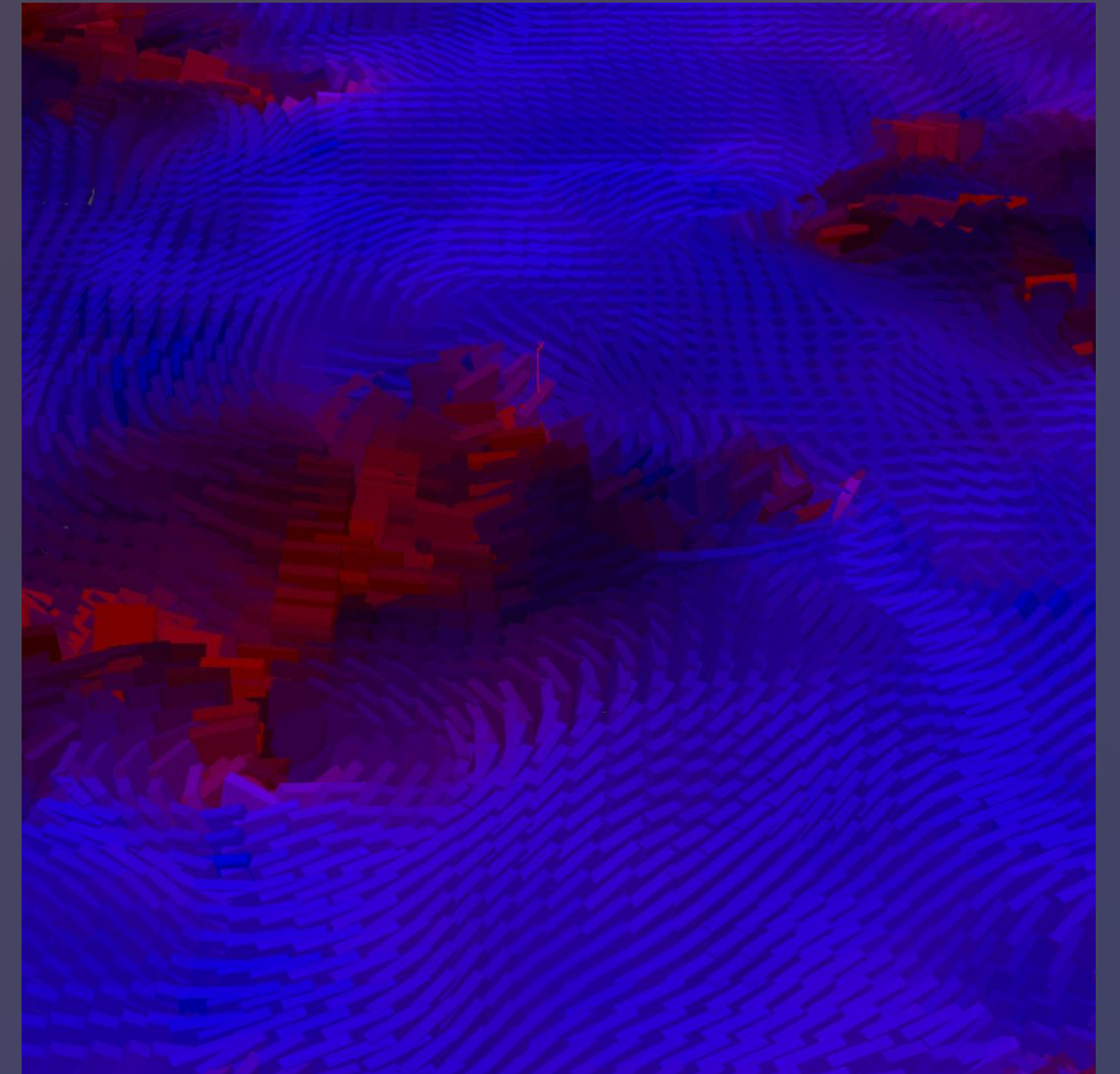
# EXAMPLE 1 – take it further

- Started with a tutorial from Entagma
- Added a secondary noise on top



# EXAMPLE 1 – take it further

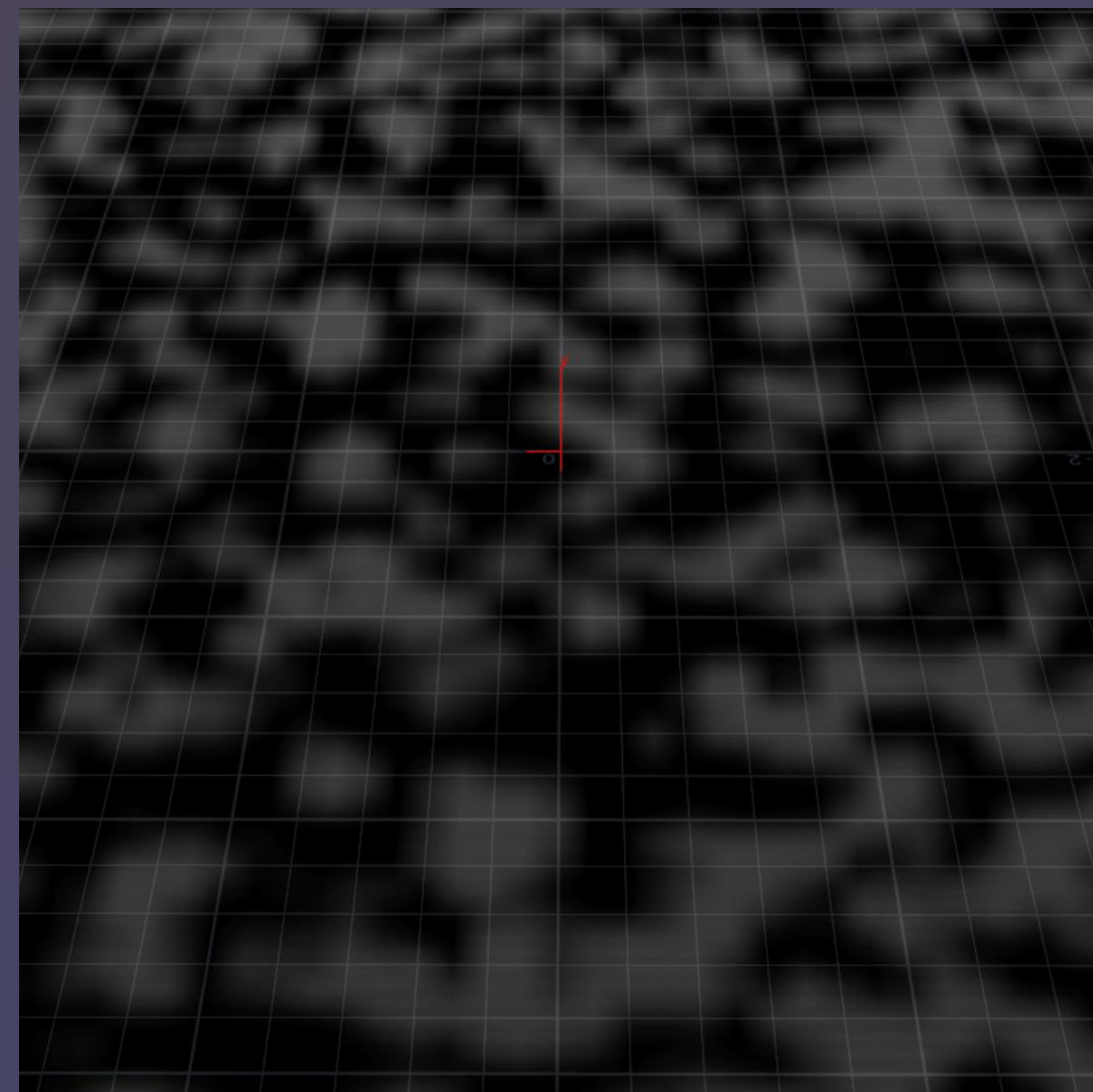
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- @Cd.z - angle and @Cd.x - angular speed length(@w)





# EXAMPLE 1 – take it further

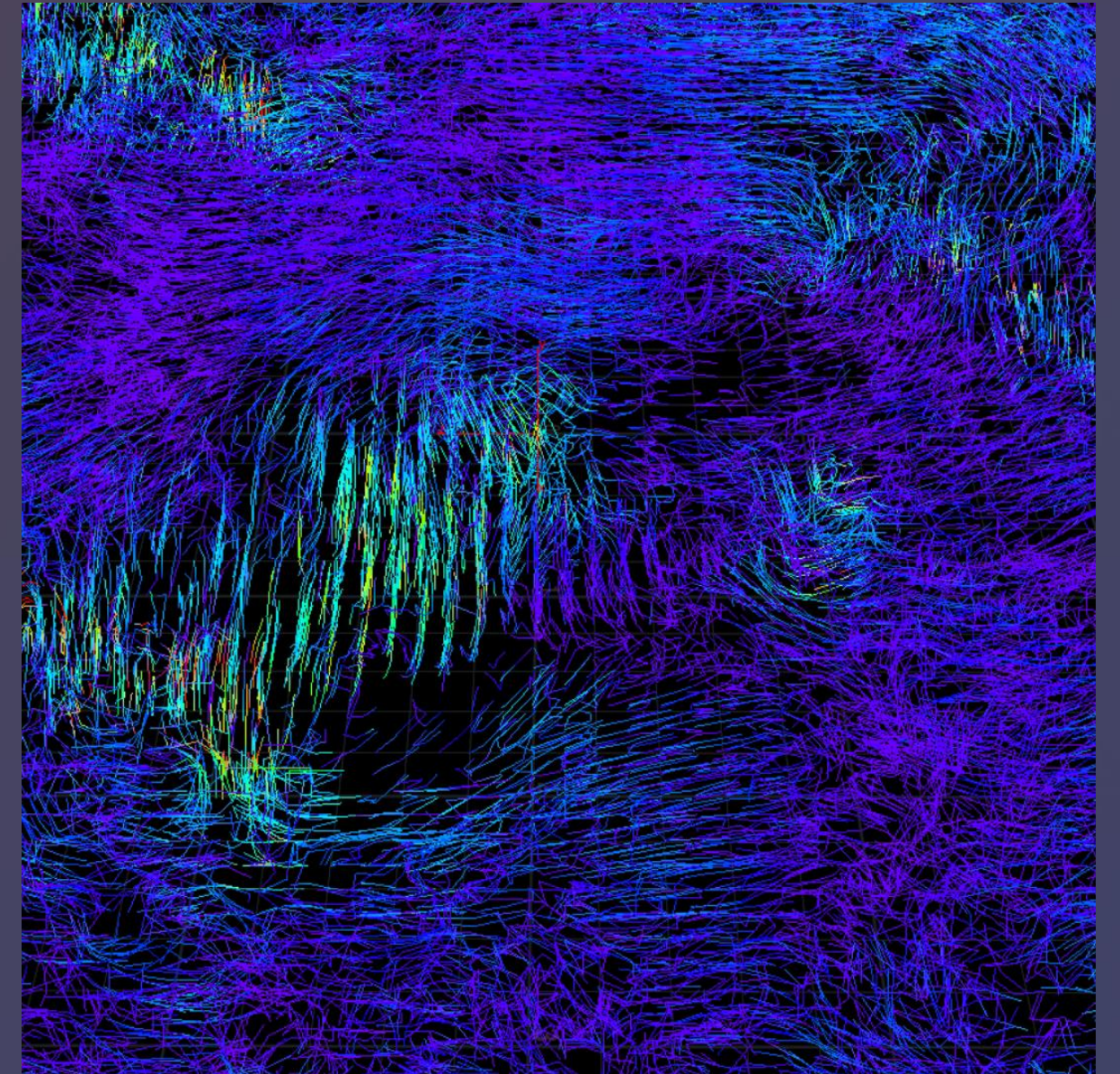
- Started with a tutorial from Entagma
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- @Cd.z - angle and @Cd.x - angular speed length(@w)
- Sourced density from ground





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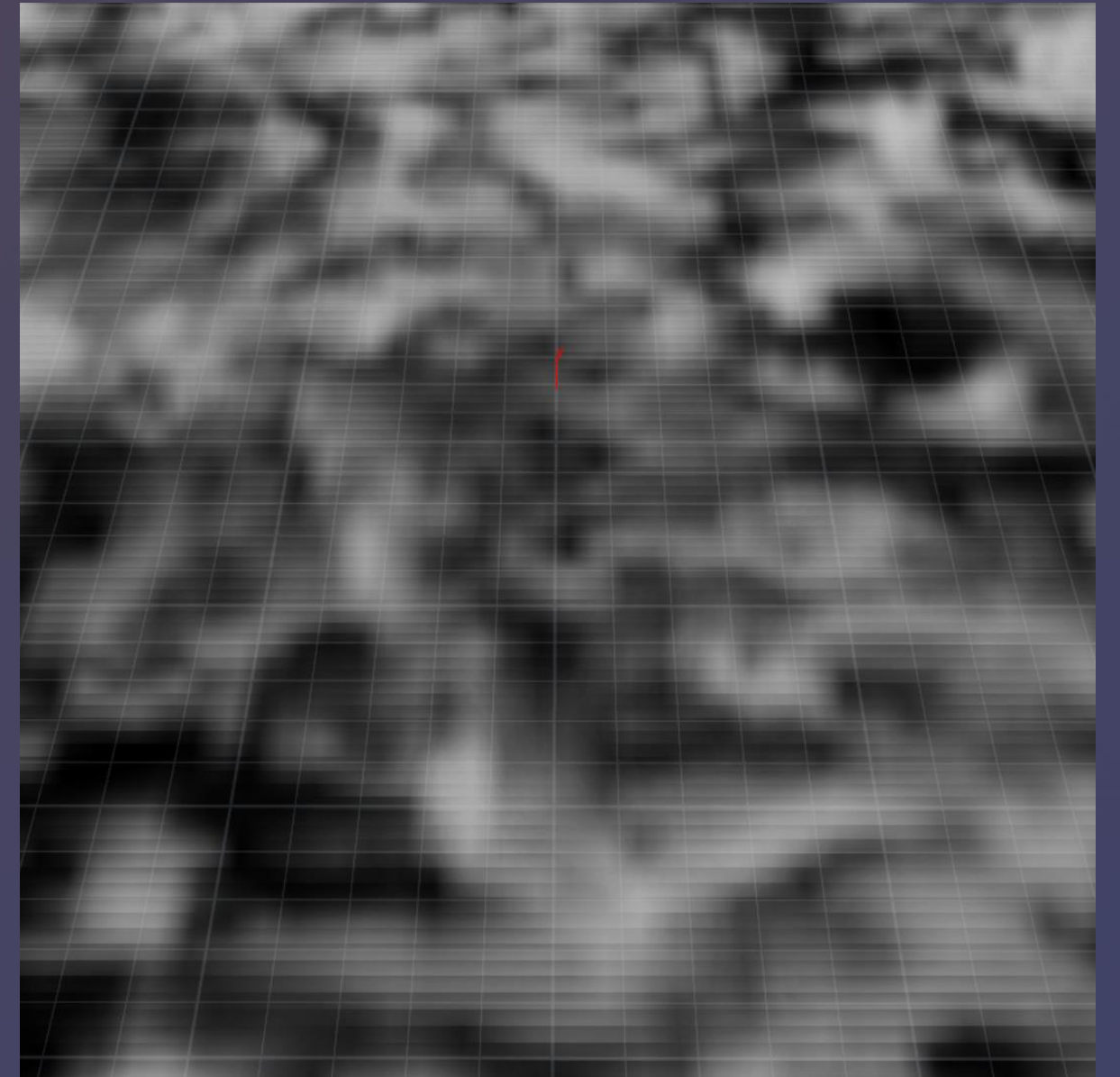
- Started with a tutorial from Entagma
- Added a secondary noise on top
- @Cd.z - angle and @Cd.x - angular speed length(@w)
- Sourced density from ground
- Used boxes as a velocity source to push smoke around





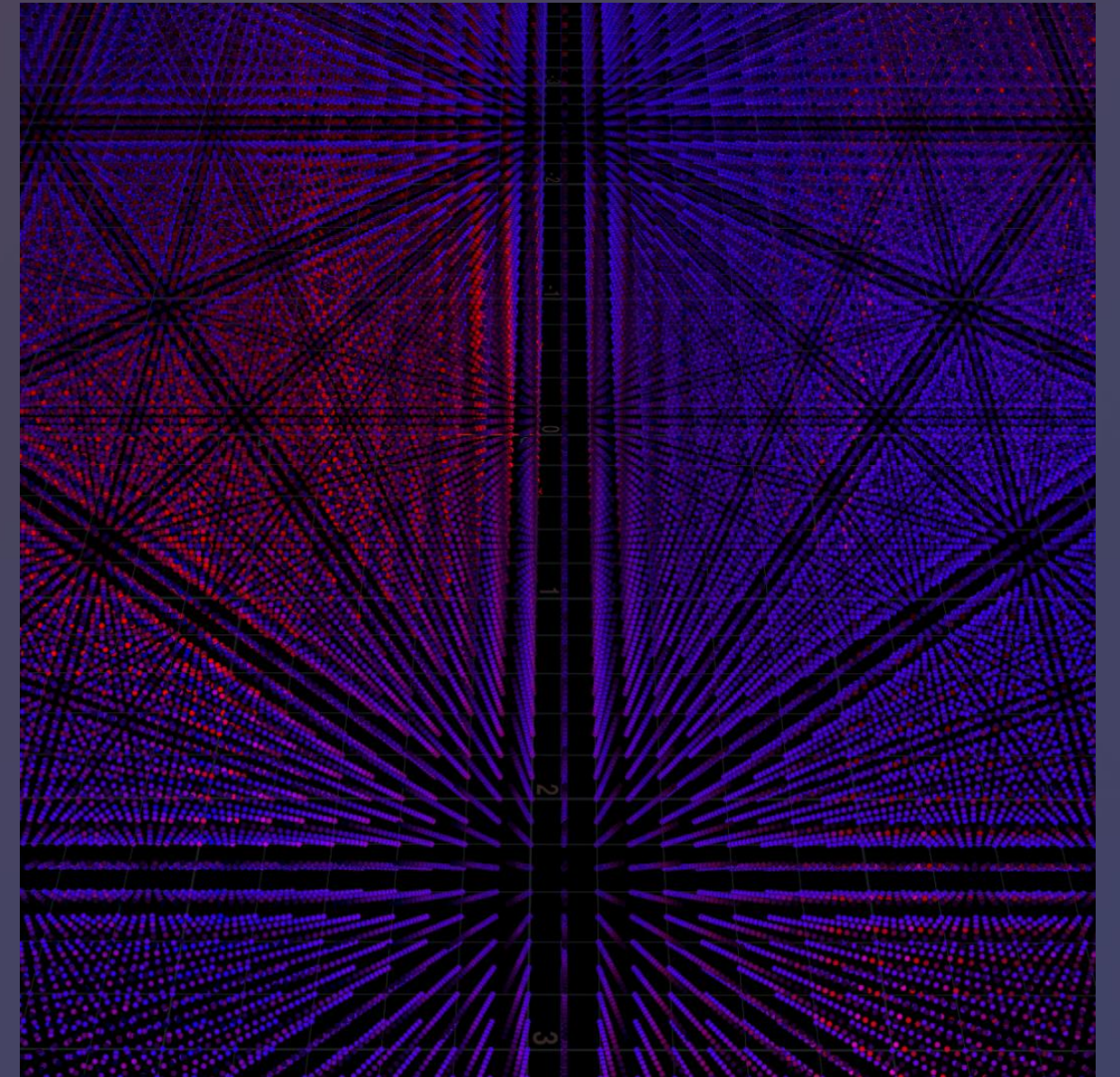
# EXAMPLE 1 – take it further

- Simulate smoke in DOPs



# EXAMPLE 1 – take it further

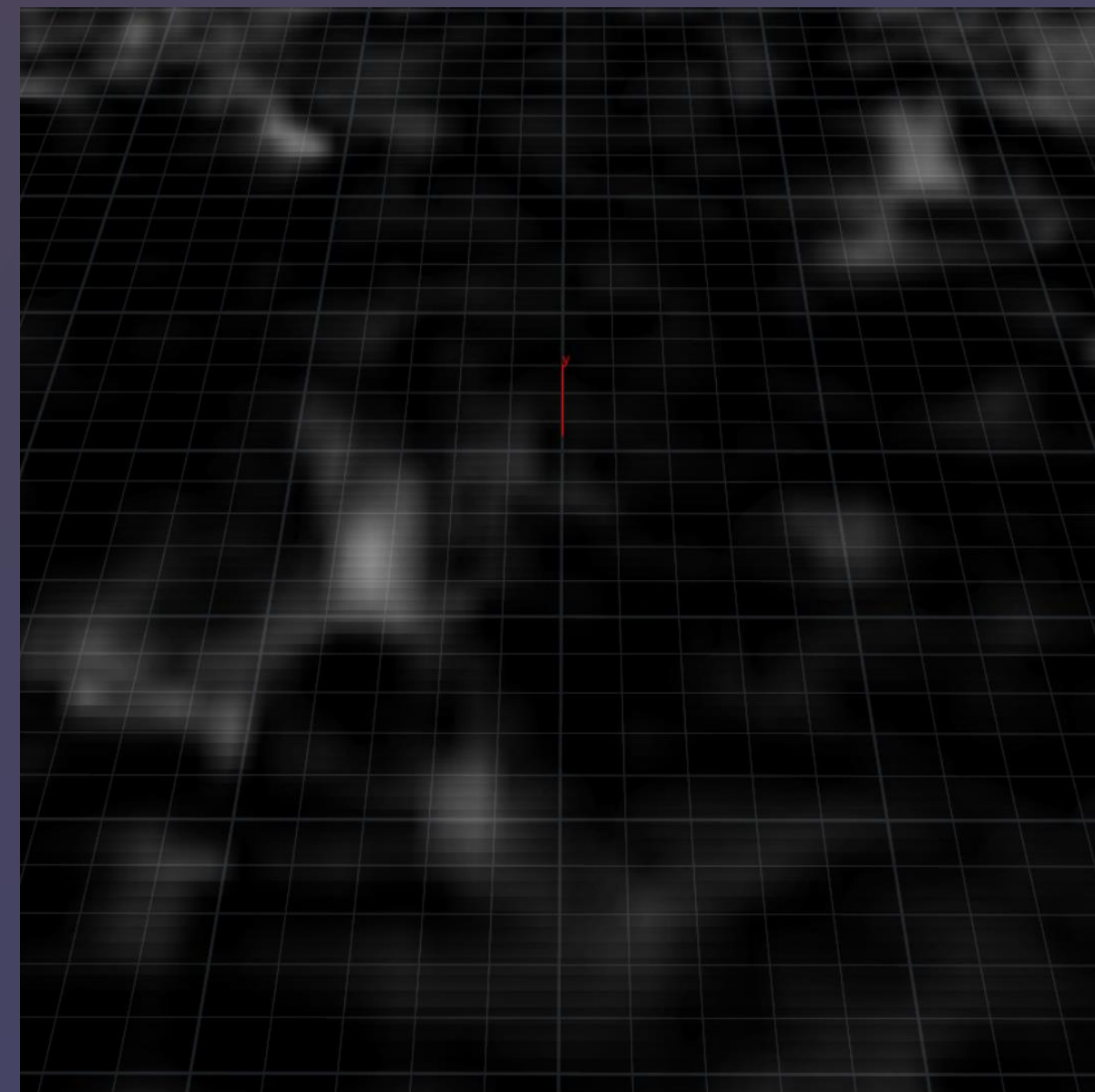
- Simulate smoke in DOPs
- Post sim - scattered points and transferred Cd from boxes to points





# EXAMPLE 1 – take it further

- Volume from attribute to get density volume where R is strongest
- Multiplied new volume with density volume from DOP sim and renamed to “heat”
- Merged back with density volume and rendered with RS volume material



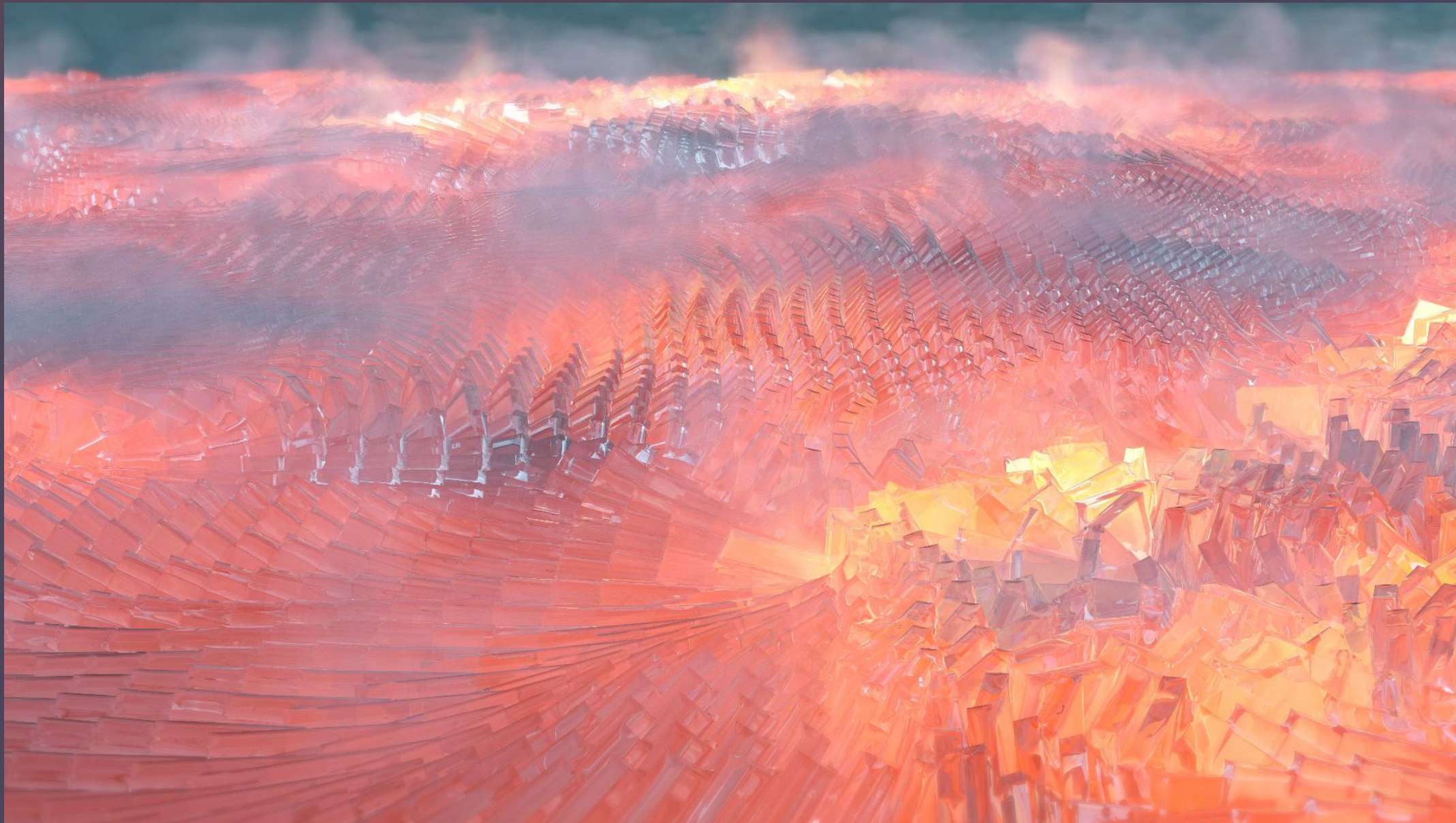


# EXAMPLE 1 – take it further

- Material on the boxes - @Cd.r - emissive and @Cd.b diffuse
- Reflective and refractive
- Round corners
- Rendered in 4k with Redshift
- Added crazy soundtrack by Tiny Cat Massage



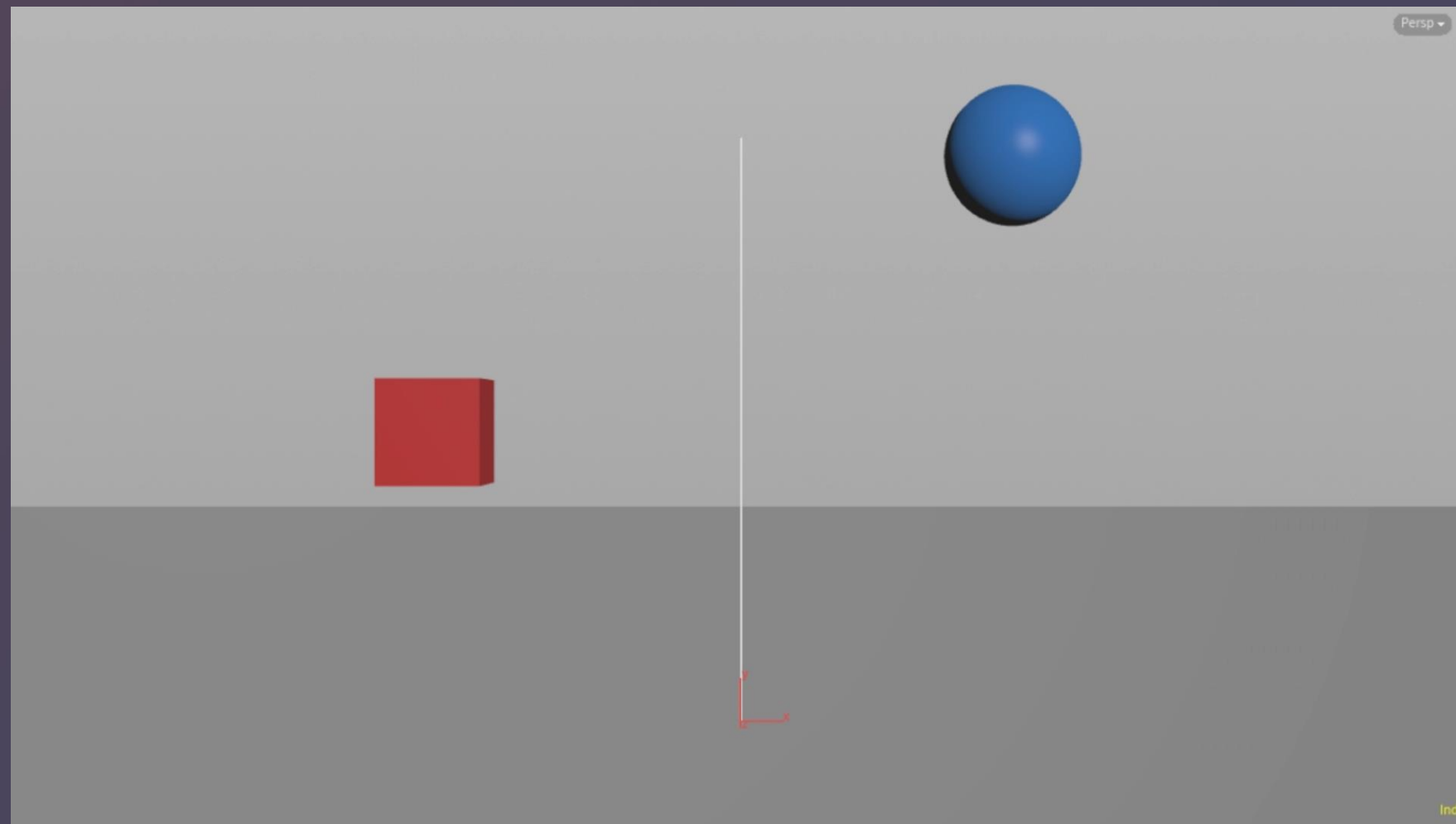
# EXAMPLE 1 – take it further





# EXAMPLE 2 – combining concepts

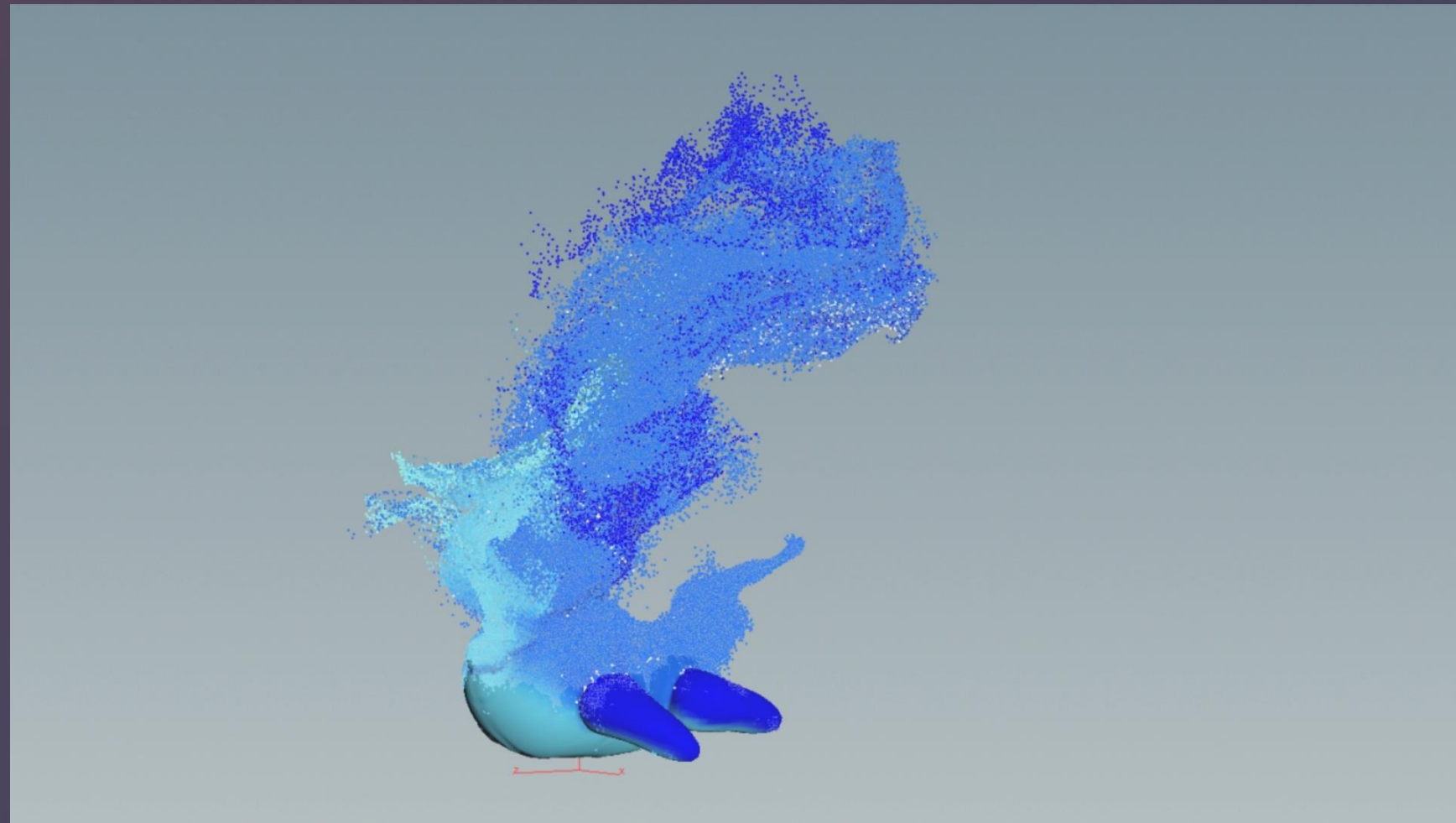
- [Houdini] Audio Driven Animation on Vimeo by Atom





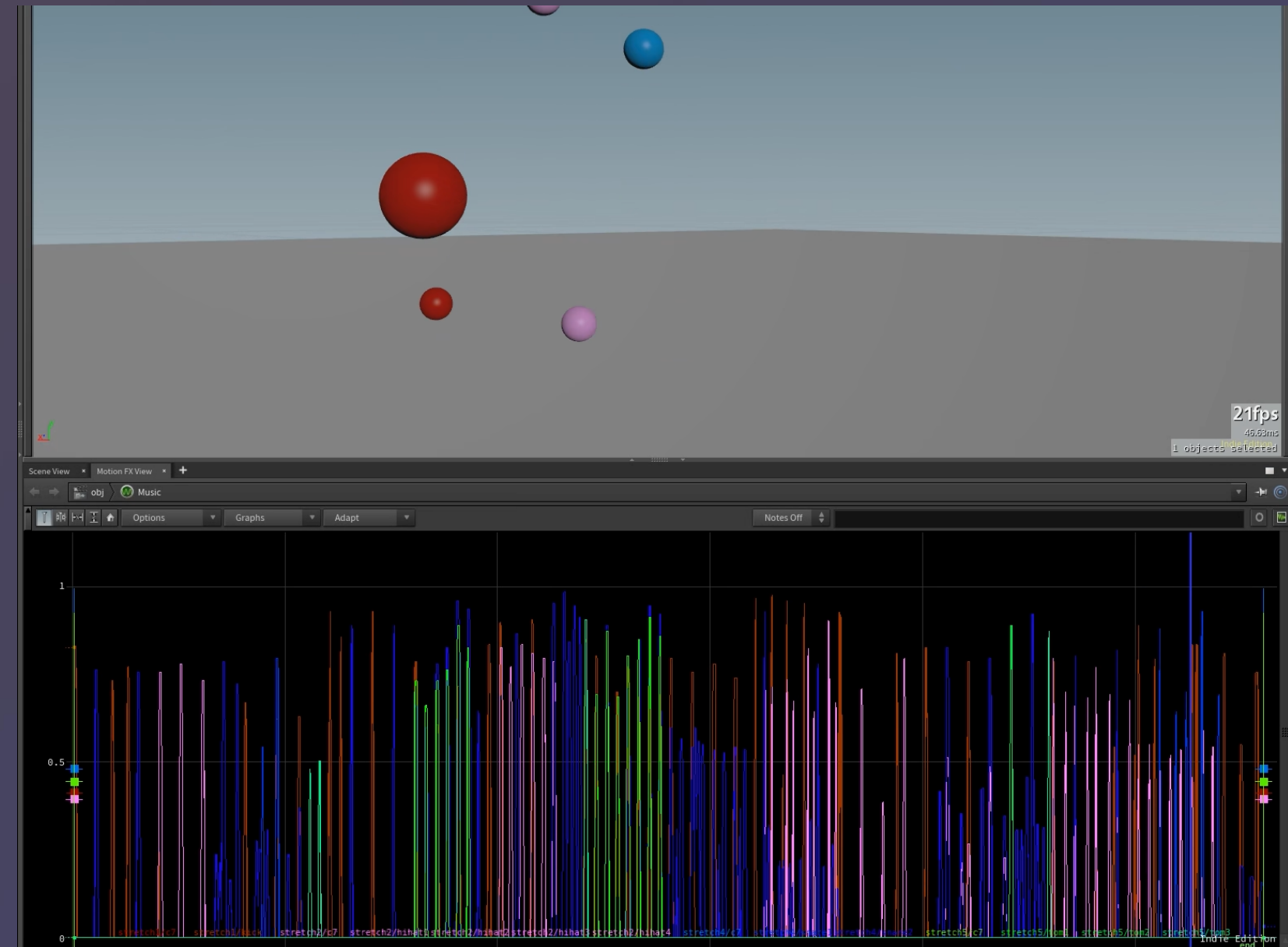
# EXAMPLE 2 – combining concepts

- Introduction to fx using Houdini by Spencer Lueders



# EXAMPLE 2 – combining concepts

- I used MIDI not wav
- Emitter for each note
- Spawned a particle from relevant emitter on note
- Copied a sphere to each particle
- Scale from amplitude of note





# EXAMPLE 2 – combining concepts

- Second POP to dissolve spheres on collision
- Custom velocity for particles





# More adjustments to the learning routine

- Frustrating to walk away from unsolved problem late at night
- Limited learning Houdini
- Saved time on rendering – two machines, every second frame





# More adjustments to the learning routine

- Frustrating to walk away from unsolved problem late at night
- Limited learning Houdini
- Saved time on rendering – two machines, every second frame
- Started painting in the evenings





# Ideas

- Art Station, Instagram, Pinterest, film, dreams
- Keep a list of ideas
- Start simple
- Skip the first idea
- “Plussing” an idea
- Storytelling

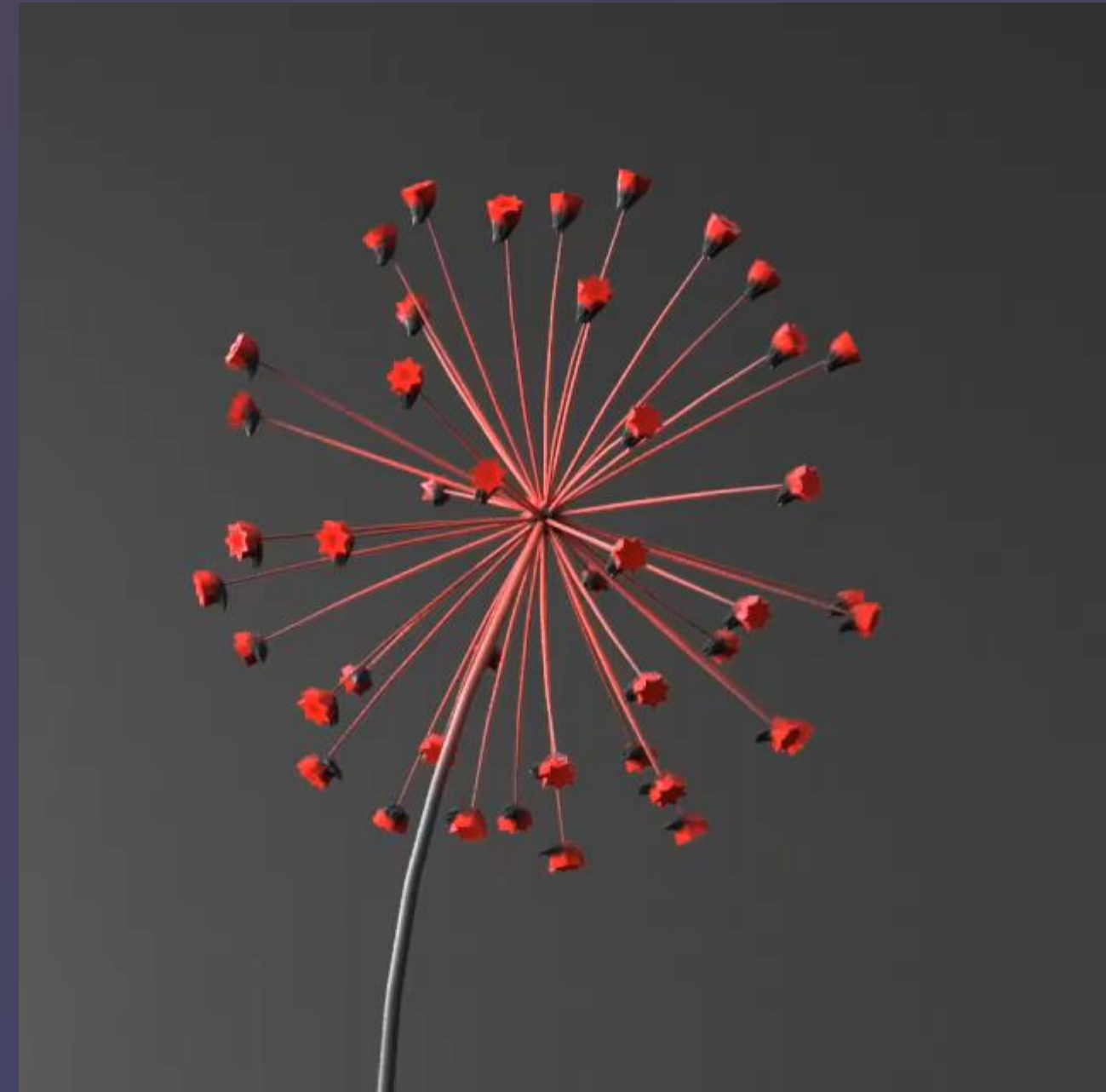




# Tell a story

- See what other artists are doing

“Morning” Artwork by Farid Ghanbari  
(renderburger)



# Tell a story

- See what other artists are doing
- Free models from [threedscans.com](https://www.threedscans.com)





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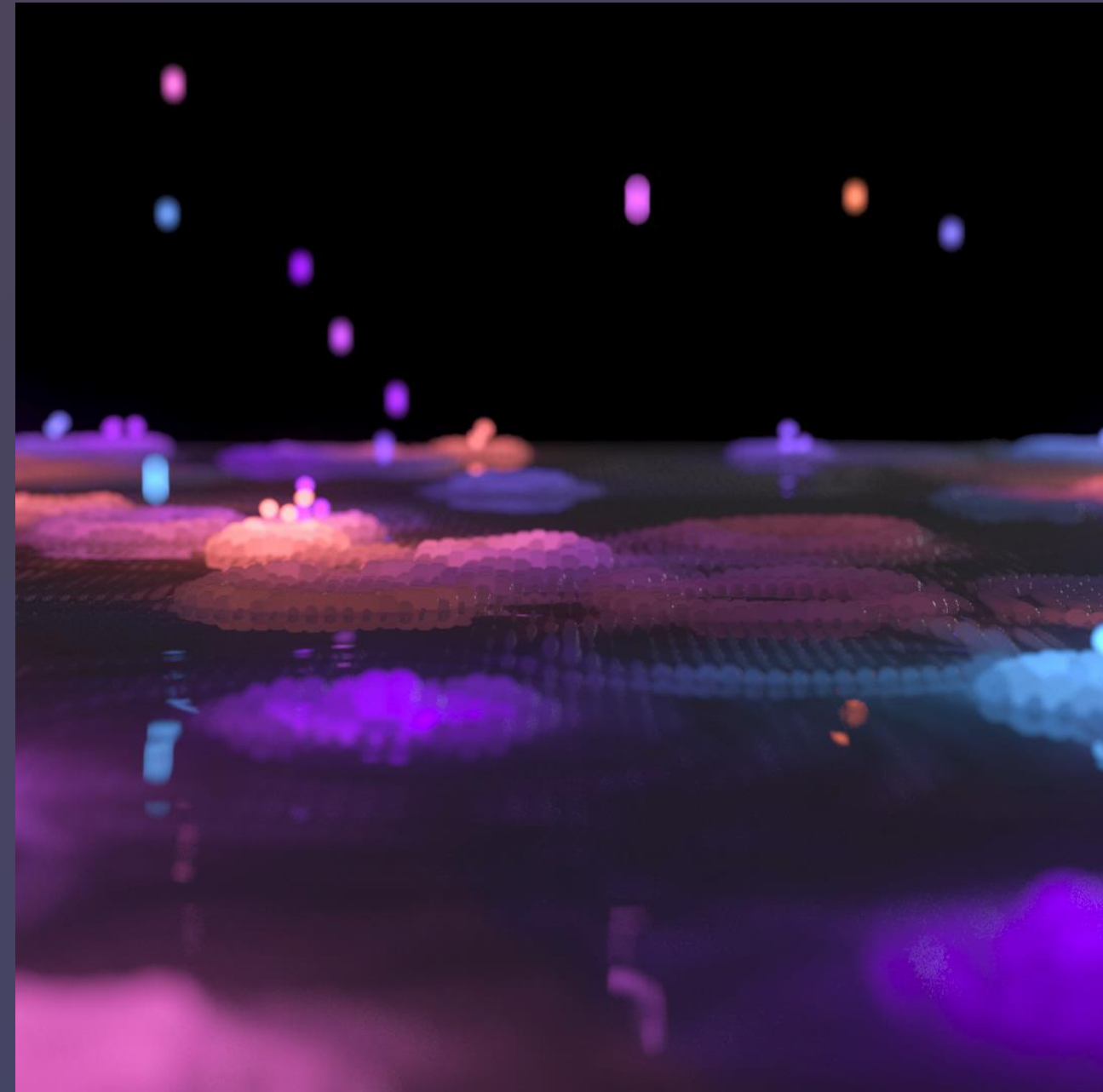
- See what other artists are doing
- Free models from [threedscans.com](https://www.threedscans.com)
- Assets from cgTrader or Unity store
- Team up

“Mind Blowing!” Artwork by Farid Ghanbari (renderburger)



# Iterating (failing) fast

- Fast implementation to see what has potential
- Move to the next concept if the current one doesn't spark
- Don't get stuck
- Trust in yourself





# How do I know when a project is finished?

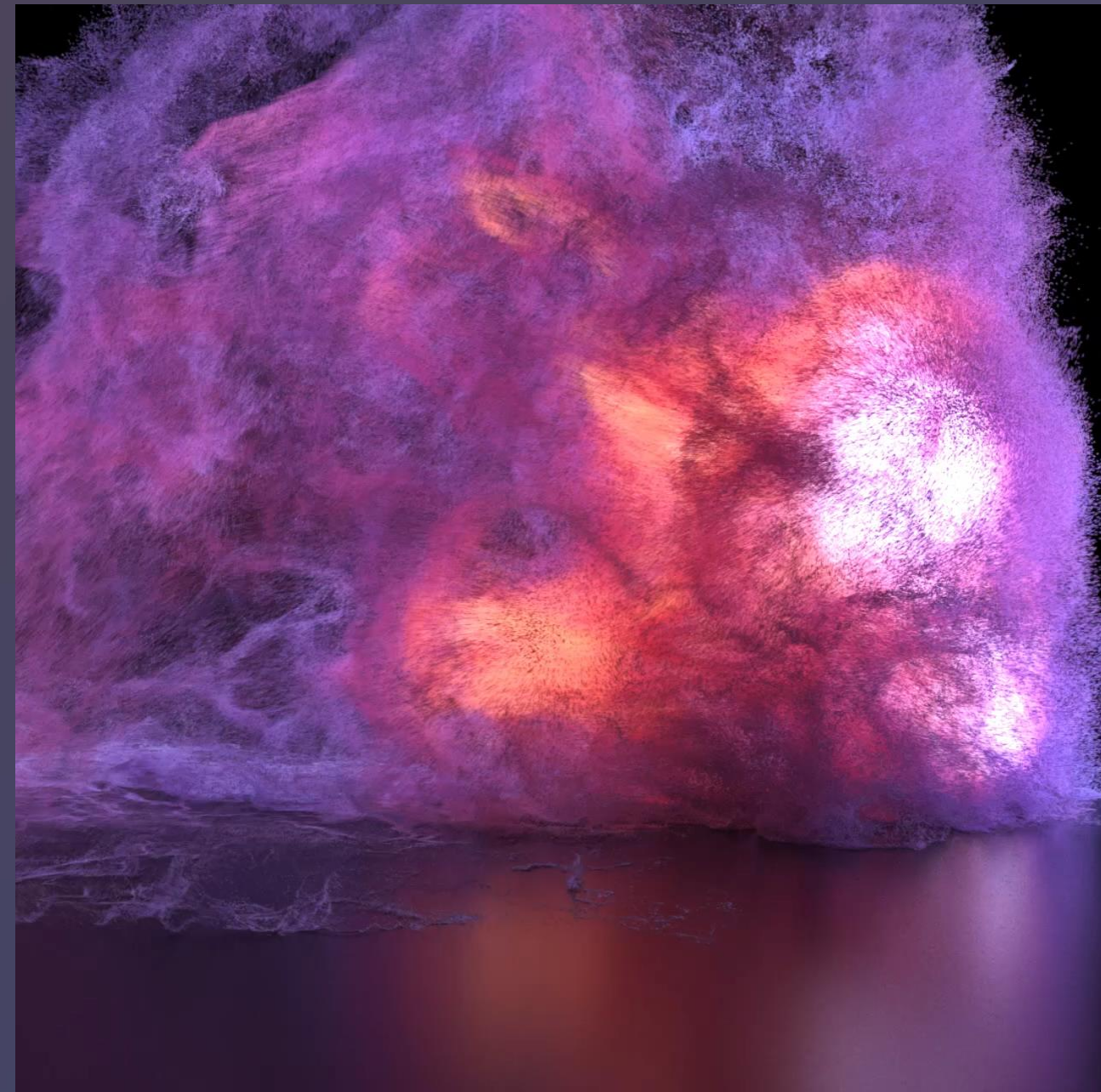
- Focus on what's important
- Fix only the top 5 - 10 issues
- At least one project a month
- If I can't deliver a complex or clever shot, then I render something simple
- Rendering takes time





# Overcoming paralysis of sharing work

- Perfection is the enemy of done
- Journey before Destination
- Accelerate learning using feedback
- “The work of art is not complete until it is shared” - Meg Black
- You’ll be surprised by what people respond to



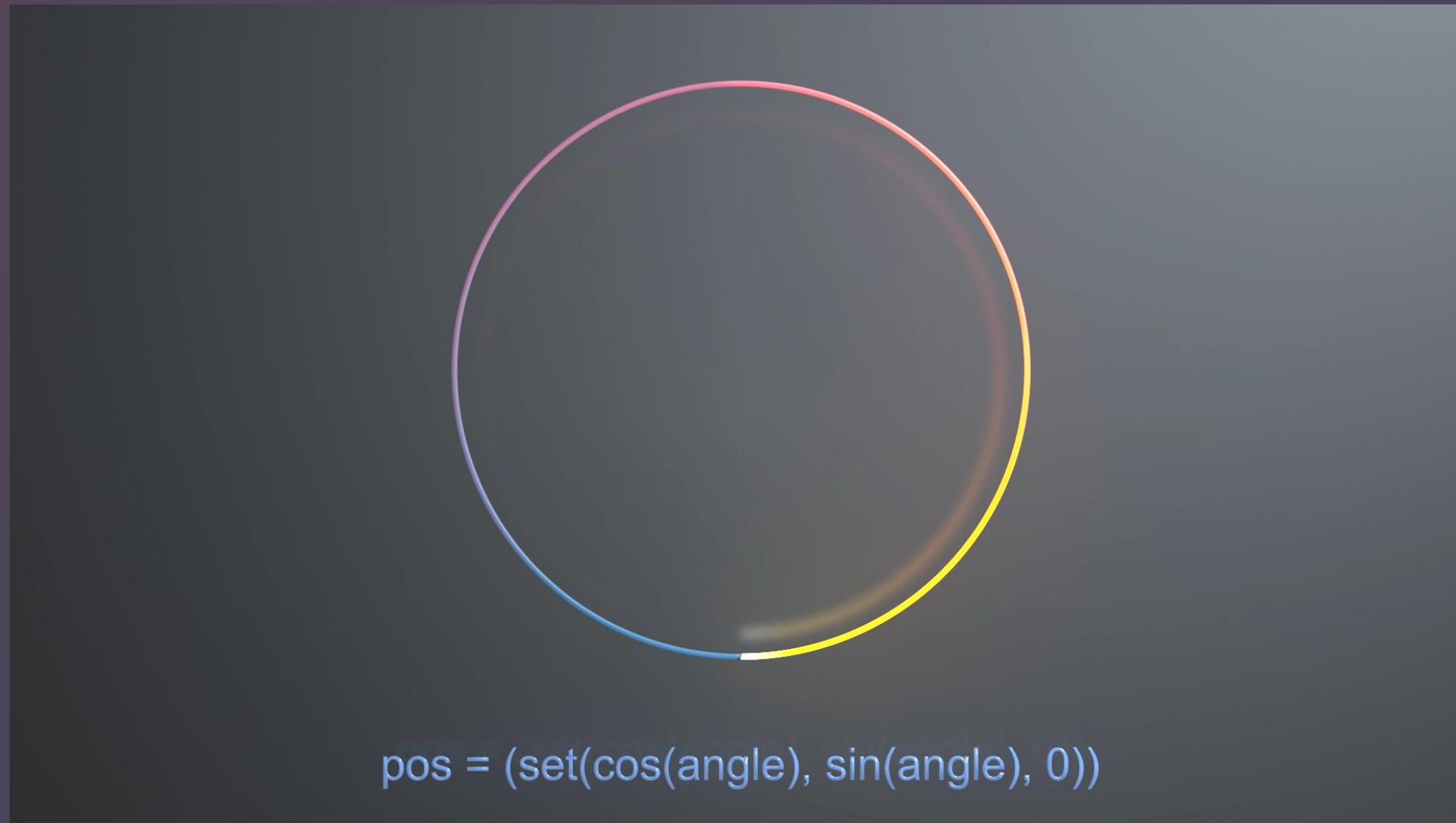


# How do I remember things I've learned?

- How did I do it last time?
- Taking notes
- Rebuild the same setup a few times
- Keep old files on GitHub
- Shelf tools, presets and HDA's
- Visual learning – easier to debug and memorize

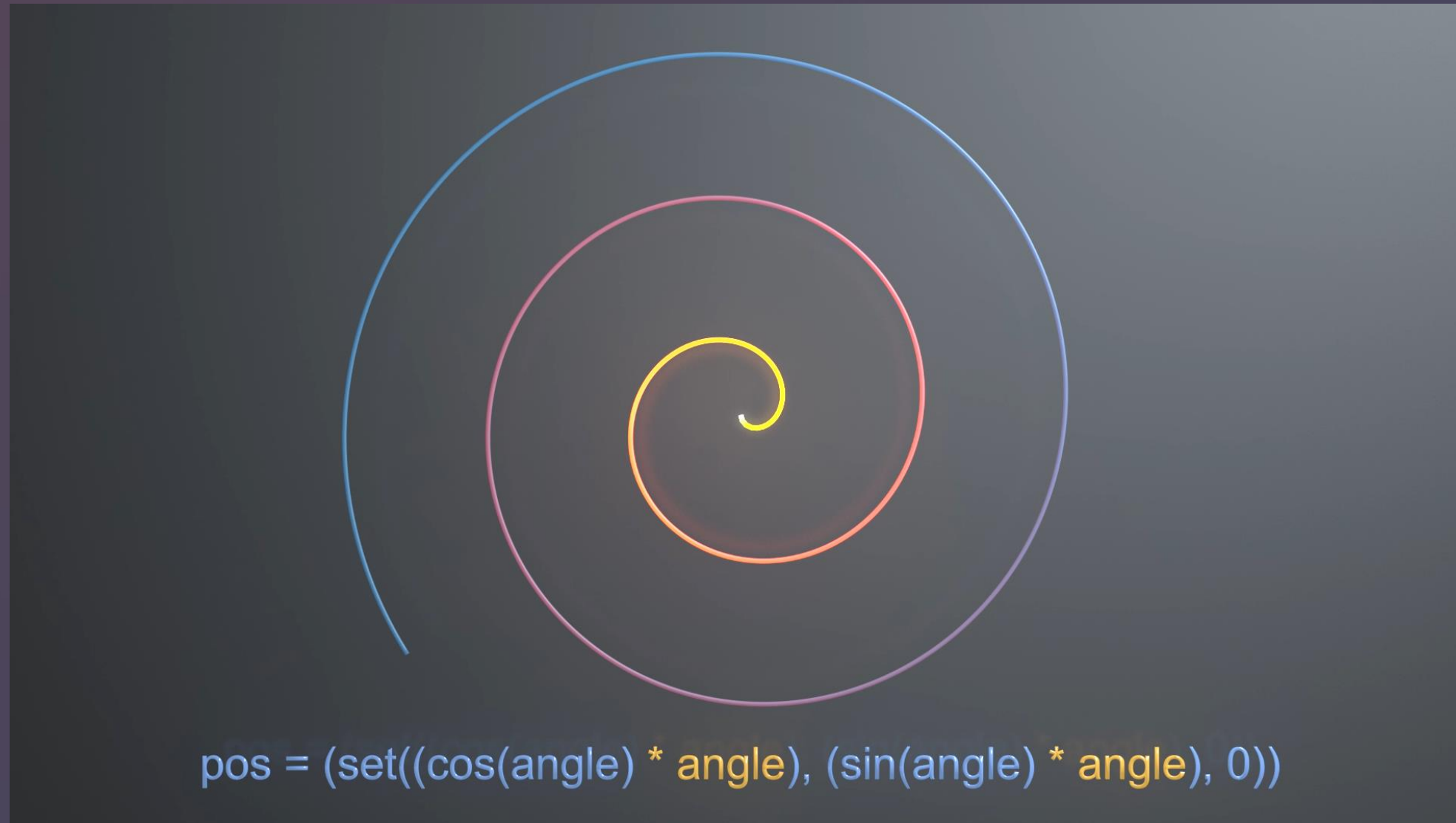


# EXAMPLE 3 - circles

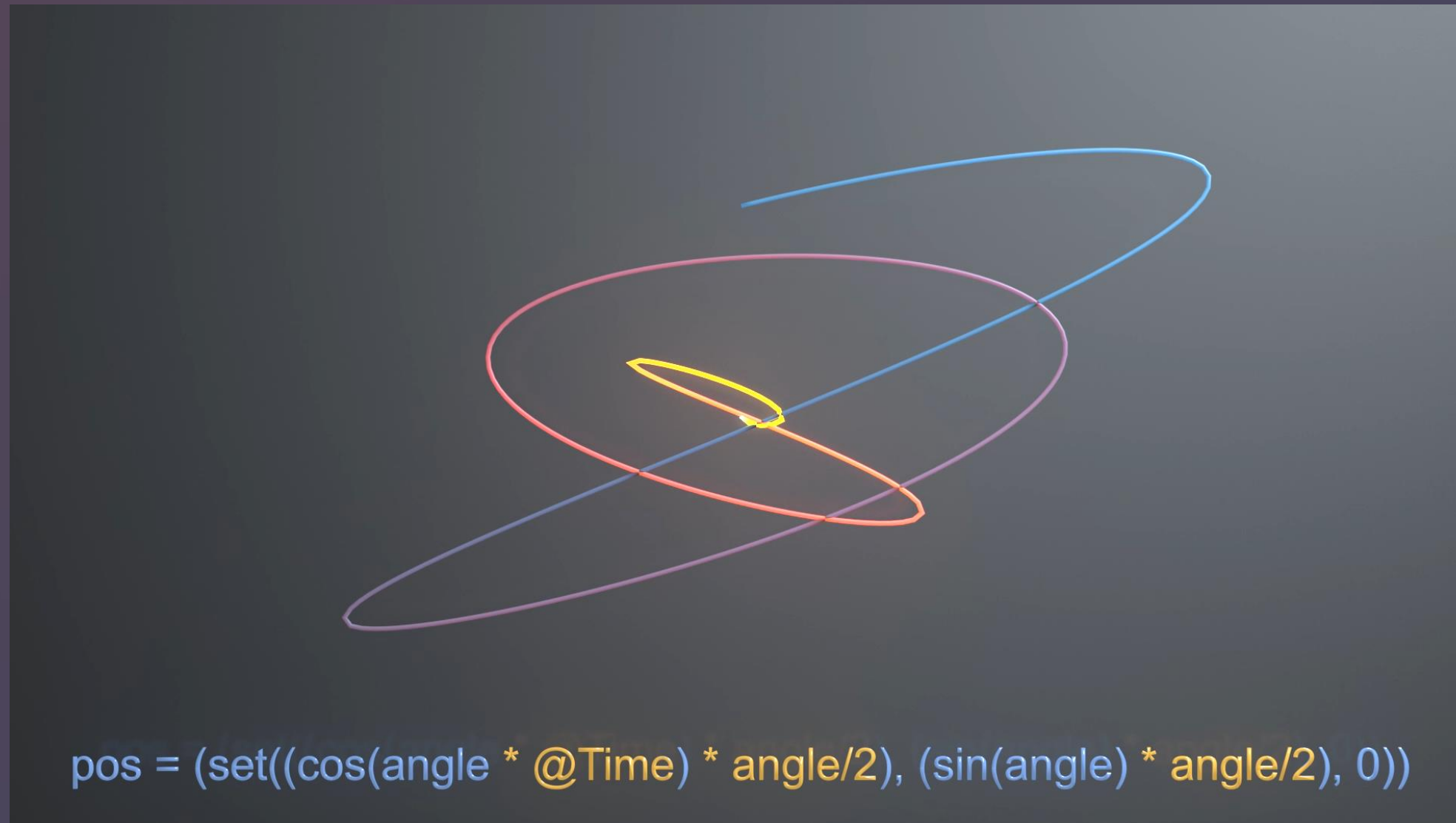




# EXAMPLE 3 - circles



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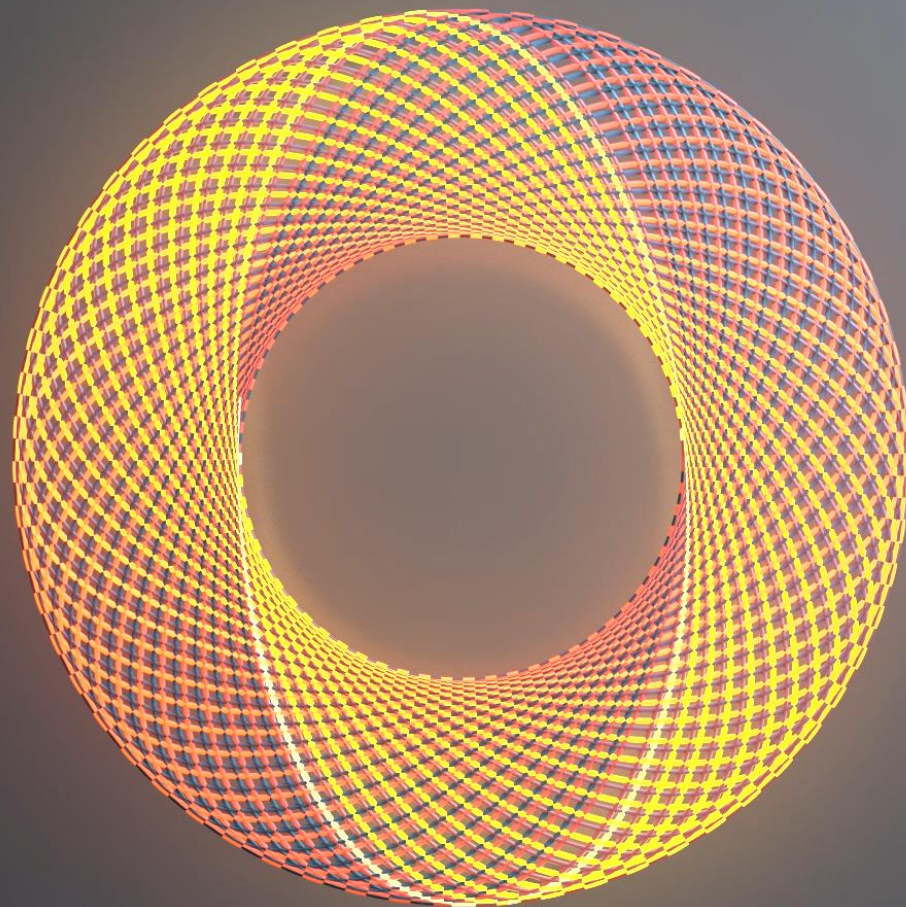




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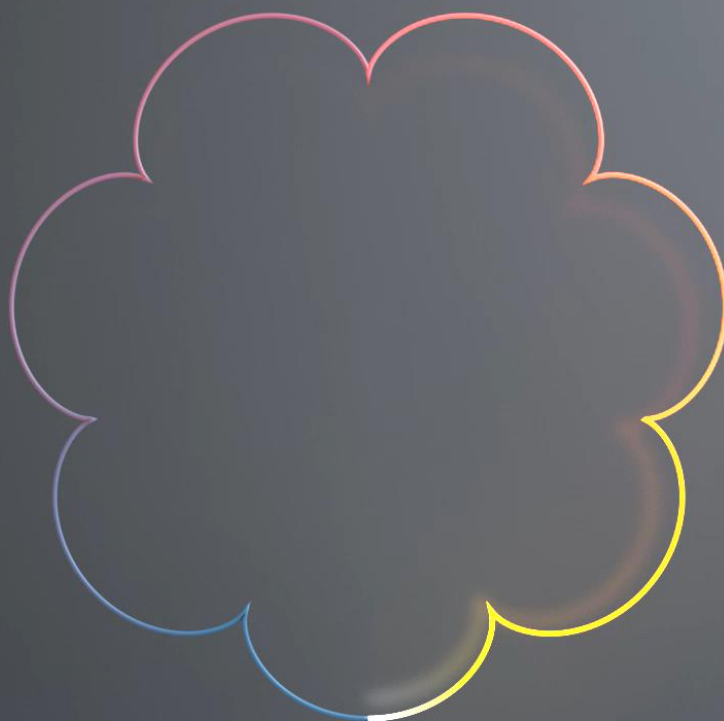
# EXAMPLE 3 - circles



```
pos = (set(((cos(angle)*2)*cos(rot_angle)-(sin(angle))*sin(rot_angle)),  
          ((sin(angle))*cos(rot_angle)+(cos(angle)*2)*sin(rot_angle)), 0))
```

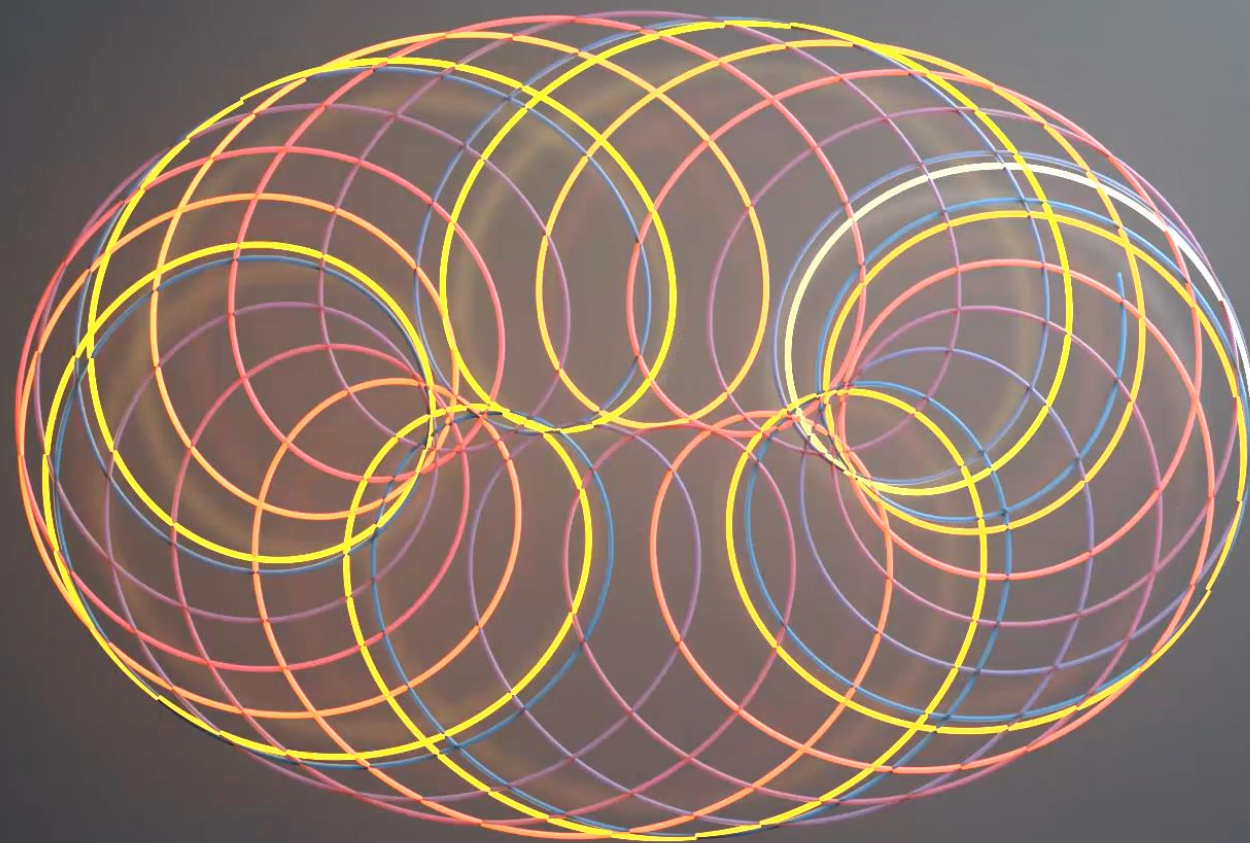


# EXAMPLE 3 - circles



```
pos = (set((cos(angle))+((0.0625)*cos(angle*8+@Time*6))  
          +((0.0625)*cos(angle*8-@Time*0.2)),  
        (sin(angle))+((0.0625)*sin(angle*8+@Time*6))  
          +((0.0625)*sin(angle*8-@Time*0.2)), 0))
```

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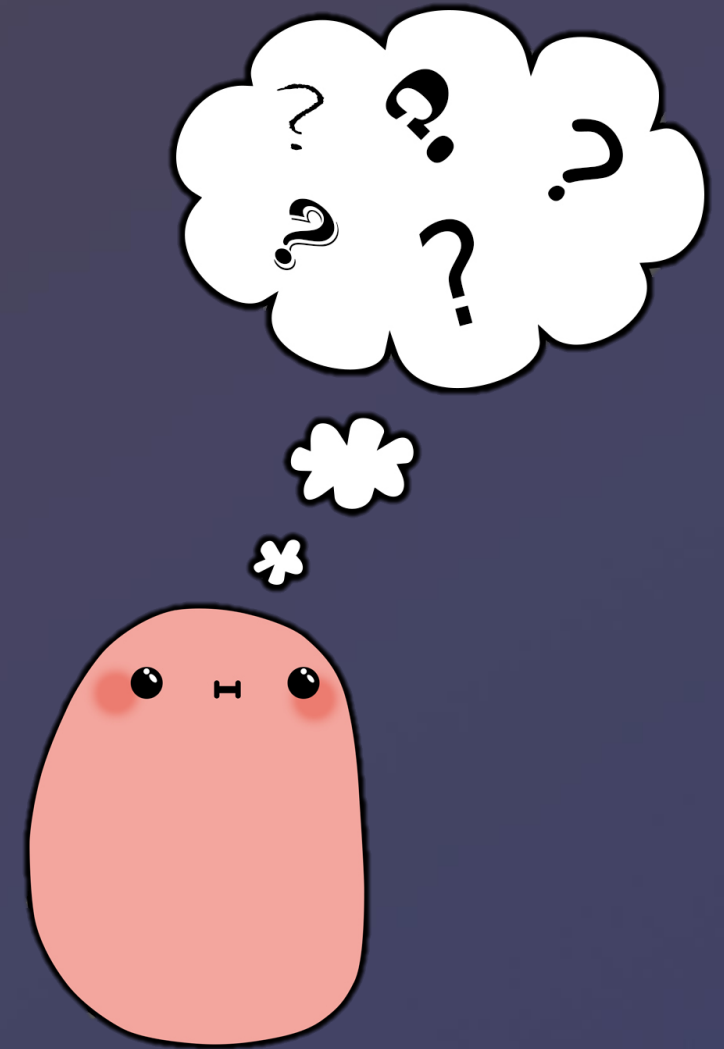


```
pos = (set((cos(angle))+(cos(angle*0.0625*@Time)*2),  
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```



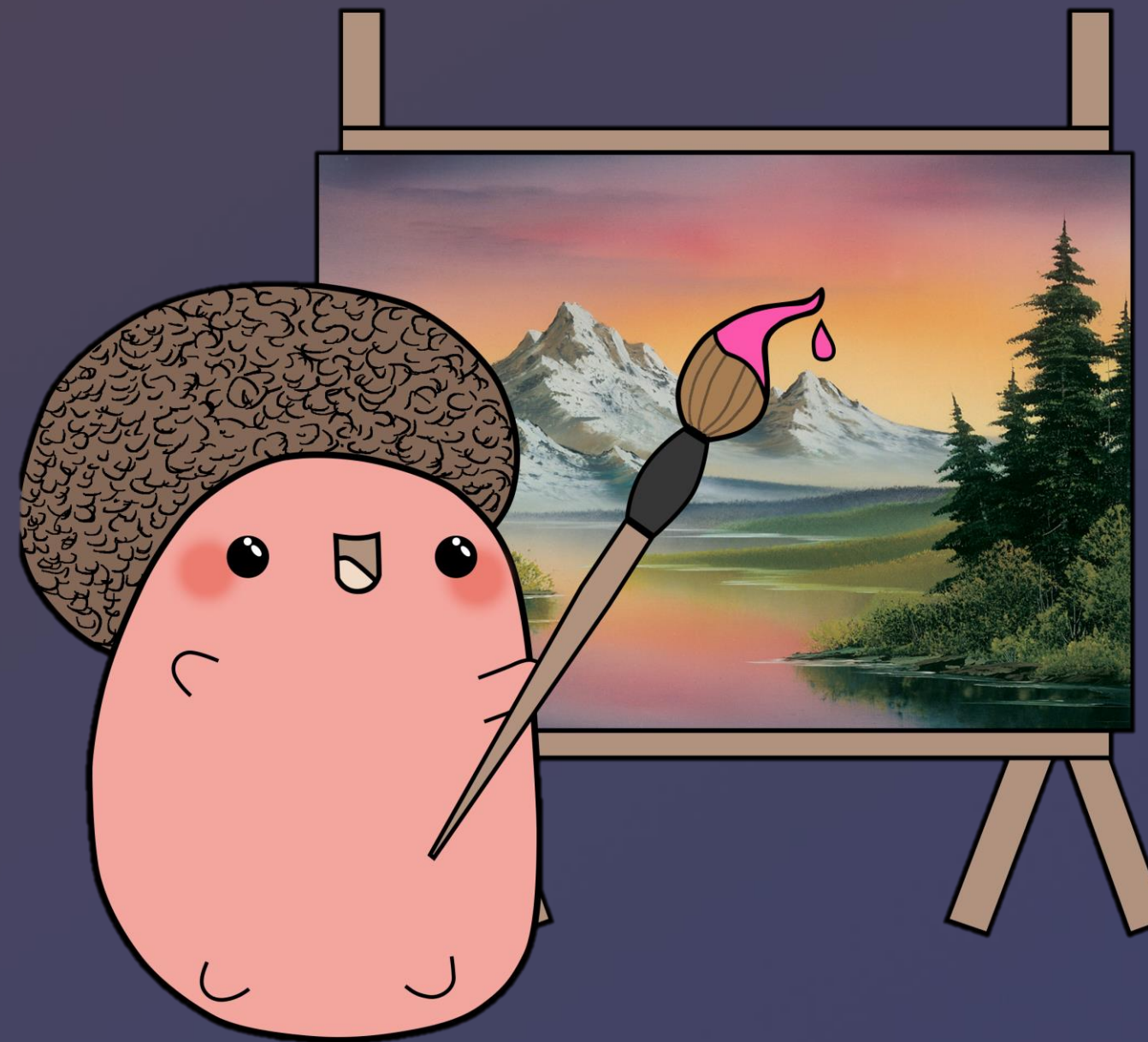
# How is this all relevant?

- Projects in Houdini branched into learning other software: SpeedTree, Redshift, Substance, Megascans, GitHub, Nuclino
- Logic, math and scripting
- Debugging, solving problems and critical thinking
- Work from big to small



# Growing makes me happier

- Becoming a better artist is fun!
- Satisfaction and feedback loop
- Staying current with new techniques and technologies
- Widening horizons – it's easier to connect with others from different disciplines



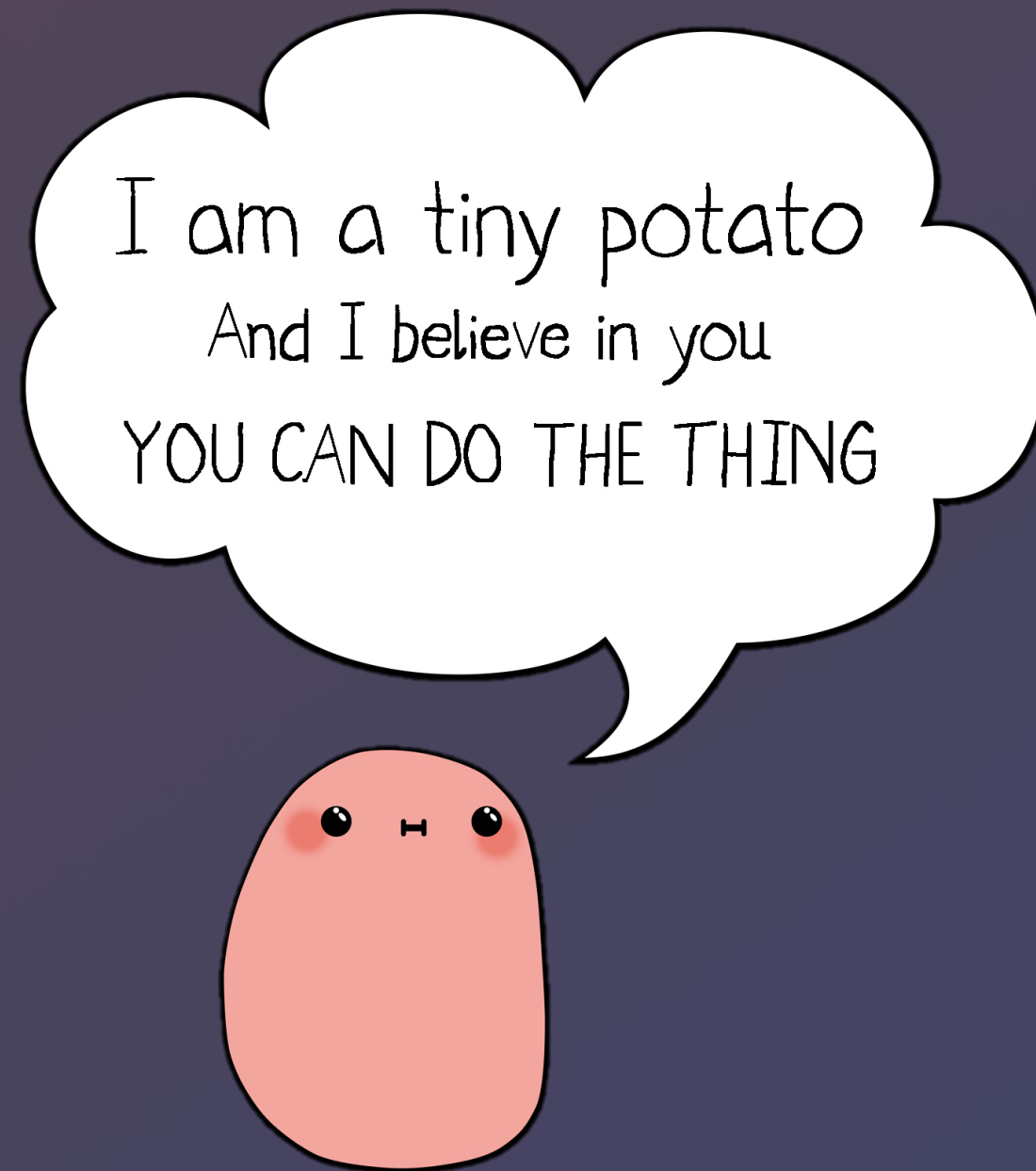


# End – Play with it!

- Check out other artists – what excites and inspires you?
- Try unfamiliar software or techniques - maybe you even like it? Remember: there's no math police!
- Personal projects – your rules, your sandbox
- Nourish your passion
- Never stop learning
- Help others grow



# Tiny potato believes in you!





# Thank you!

- Thanks to everyone who believes in me
- My husband Sean
- Mark Teare for invitation to GDC
- Team at id software for support



# Questions?

e-mail me at  
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