

A Jilted Generation

Next up was the restoration of the video files from the demos *Dreamscape* and *Eclipse*. The technical details have been covered earlier. But first we had to get my Amiga 4000 working again. It had been sitting in assorted closets and basements for 22 years, just like the VHS tape. It was also barely rescued from a flooding in the basement earlier. And with that in mind, there was another flooding in the basement yesterday. I only store things I want to get rid of there now. No point in carrying it manually to the recycling station. There have to be some advantages to all that flooding!

Mr Julin had all the tools needed. Old TV: Check. Old VGA monitor: Check. Power tools: Check. Backup CPU fan: Check. *GoTek* USB disk drive: Check. Backup Amiga mouse: Check. Unfortunately, we didn't have a backup clock battery, but who keeps track of time anyway? A fairly precise wristwatch should be enough!

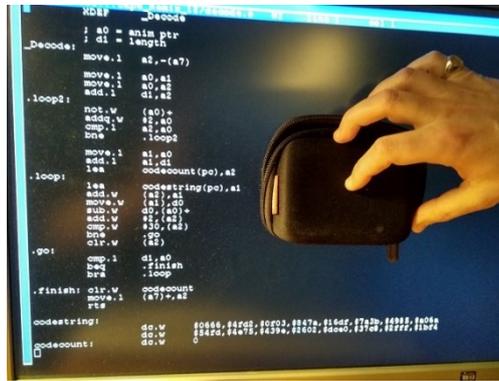
We carefully removed the top cover and removed a lot of dust, but it looked pretty solid. The clock battery had started leaking, but it hadn't damaged anything, we hoped. I had upgraded the Amiga with lots of hardware over the years: A *GVP SCSI* card with *GuruROM*, a *BSC* serial port card, a *CyberVision64* VGA card, and an *Apollo 68040* CPU board running at 40 MHz, with a whopping 32 MB - megabytes - RAM. The CPU fan looked just as dodgy as it had 22 years ago, but we decided to try it.



It was pretty exciting the first time we pressed the power button. Instead of being greeted by the sounds of capacitors popping, one of the worst sounds ever when restarting old equipment, it actually booted up! The VGA card was connected to the monitor, and suddenly the merry picture of a burning PowerPC popped up! Some die-hard fans bought PowerPC cards for their Amigas. Not me, since it was very expensive, but I liked the logo. The CPU fan crept into life and kept going for a while until it died. Time to change it. Don't keep a 68040 running without a fan! Black smoke is going to leak out of the tubes.

Mr Julin brought out his power tools (luckily not the jigsaw), and we managed to do a pretty decent job of replacing it, considering new screw holes were needed. At least we didn't use duct tape. Next startup, the new fan was merrily whirring along in the cool summer breeze. I think. The curtains were drawn. There were more important issues at hand than worrying about the weather!

It felt like going 22 years back in time. Everything was as I had left it: In total chaos. We were trying to locate the original MPEG-1 video files from the demos, and we found most of them unencrypted. Unfortunately, at the time, I couldn't find the *Dreamscape* Atom scene or the *Eclipse* logo scene. No problem, they would surely turn up.



And, quite correctly, Mr Julin and I later recovered the Atom scene, but it was encrypted. Or something like that: First we tried extracting the decryption routine. It was ridiculously crap. Check the picture. Then we attempted to reimplement it on a PC. After a couple of hours of failing and forgetting how great big-endian was, I decided it would be easier just recompiling the demo and saving the raw output on the Amiga. Four hours later, I had the file. Some dork had forgotten to do proper backups, so a lot of rewriting was needed. Turns out the same dork had started updating the code for the next planned demo that never happened. Also, compilation times were brutal since the same dork forgot to change the clock battery and figure out how to set the time correctly again. Noob error. Luckily, good, old *CygnusEd* made us able to transplant a clean save routine into the mess. That editor was great!

It was slightly depressing that the source code was in such a state that it wouldn't make sense to release it. The custom encoder would compile but crash horrendously. The player, as mentioned, required brain surgery just to load and decode files. Lesson learned: Always do full backups of all code! I do that now. Very often.

We also recovered some unused still images in much higher resolution than original that we used in the video. The DreamScape logo was slightly improved from the one shown in the Amiga chapter:

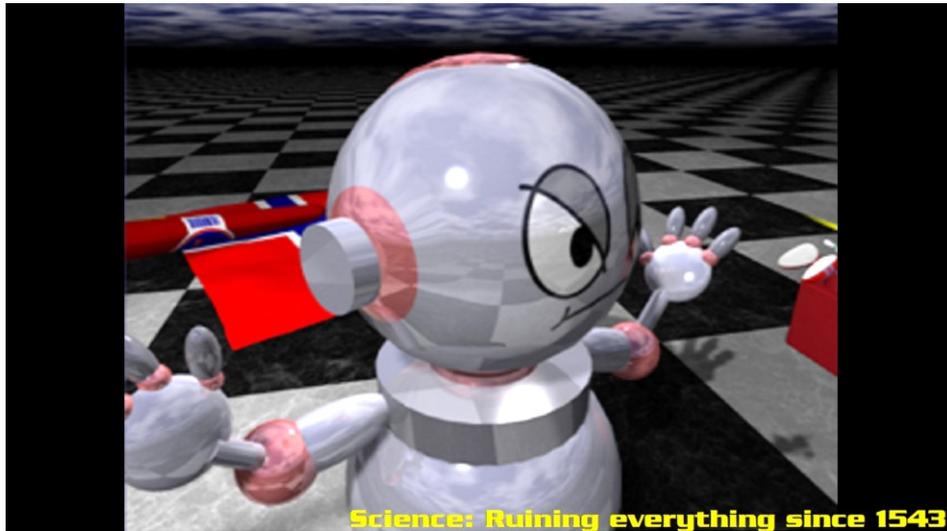


Restoring these files was quite different from restoring the VHS tape. Is there really much to be done to such old MPEG-1 files? First, we had to see if they were at all readable and could be converted to raw images. FFmpeg was used for that. Worked without a hitch. Pretty impressive, considering how old they were. The 14 rescued MPEG-1 files used about 7 MB disk space. The raw files were roughly 150 MB total. Not a lot, by today's standards.

Again, the output was in limited range. Great, we have a routine for that. That improved the black level a lot. The original demos didn't take care of that and looked a bit pale. As mentioned, my monitor was pretty crap back then. I spend more money on monitors now. It's worth it.

A bigger problem: They were rendered in 160x120 pixels. Scaling that to 1440x1080 is a factor of 9 - nine, and they were very blurry and noisy. I spent an evening tweaking the same different scalers from the internet as I had when working on the VHS dumps. Again, I ended up with using the old SSE2 scaler. Spookily, the magic factor 0.65 seemed to be perfect again. It kept the grittiness of the original while not being totally blurry.

The supposed playback framerate was around 8 fps. Actually, it was a bit higher, but that was the maximum I managed to squeeze out of an Amiga 1200 back then. It should have been 15 fps. Fair enough: Say it's 15 fps and tweak it to 60 by filling in the frames in between by blending the current frame and the next. This worked exceptionally well on the Atom scene, but not at all on the Robot scene. Varying results with the others. I left it on in all of them except the Robot scene. This is a rescued still image of him used in the new video:

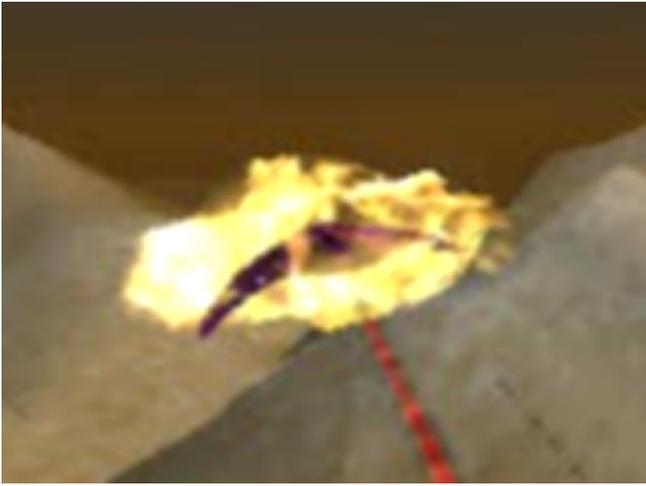


We listened to the original music for Dreamscape by Kim Berg: *Necrodance v2*. It's really an excellent production, but the samples could use a tune-up. Listening to music from back then, with 8-bit samples at low frequencies, feels like putting broken glass in your ears. Mr Julin pointed out that most of the samples were from the album *Music for the Jilted Generation* by The Prodigy, and that he should be able to resample them and make an improved version. Excellent! He added the intro sequence and took some artistic freedoms here and there, resulting in a great 2019 interpretation of Mr Berg's work.

Then there was the usual 2 weeks of gluing all the pieces together: Time it reasonably well with the music, find the correct old-school font, put texts in the right spots, and add some obscure popular culture references. Here's a quick review of them:

Quote	Source
"I have a dream, it might come true, this dream I want to share with you" - Tales from the desert	Slightly rewritten quote from the Amiga demo <i>Desert Dream</i> by Kefrens (1993).
We'll see you on the other side.	From the space mission <i>Apollo 8</i> . James Lovell said that to mission control before flying behind the moon.
86088.58	<i>Star Trek</i> star date referring to the launch of the game <i>Star Trek Online</i> .
Science: Ruining Everything since 1543.	From the web comic <i>Saturday Morning Breakfast Cereal</i> , 2011-08-28 ⁴⁹ . 1543 was the year Copernicus released <i>On the Revolutions of the Celestial Spheres</i> .

⁴⁹ <https://www.smbc-comics.com/comic/2011-08-28>



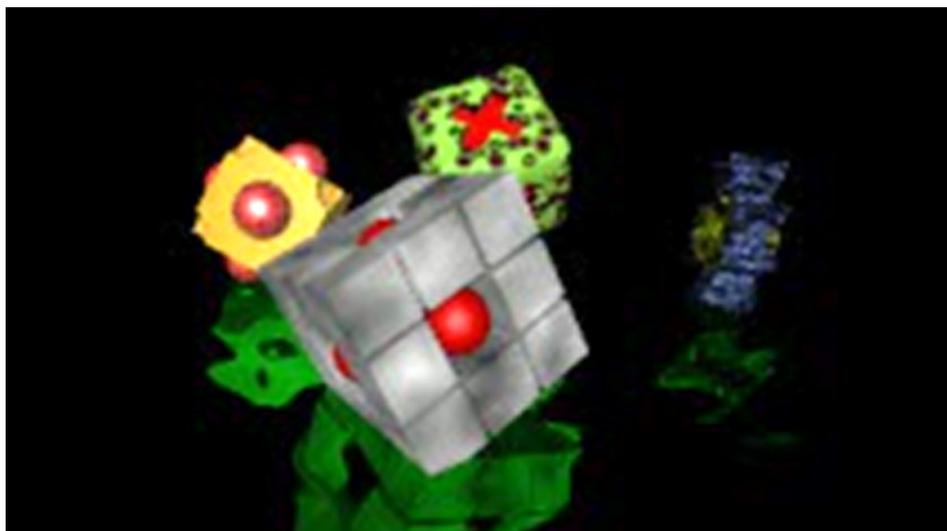
The new player generated a truckload of 1920x1080 YUV or RGB frames depending on whether it was playing video, showing images, or drawing text. These were fed to *libjpeg-turbo* which saved them as YUV444 100% quality JPEG images. The fun part is that all 14252 frames were generated in 3 minutes and 30 seconds, meaning that it ran faster than 60 fps, with all the conversion, scaling, file saving etc. going on. On a single core. Programming was a lot harder back in the middle of the 90s. I must be getting lazier than usual. Ffmpeg was used to glue the music and frames back together. Job done!

We released this as two videos: First the main one, *Dreamscape and Eclipse: The Final Cut* in July 2019, and on ~~31 December 1999~~ 1 January 2000 we released *Dreamscape: The Missing Scene*. It contained the missing Atom scene, obviously. I did the final assembly of that one on New Year's Eve 2019 after having had a couple of beers, so there were some typos and such. Oh well. It still looks spectacular, considering it's 22 years old.

The music in *Dreamscape: The Missing Scene* is called *Supernatural* and made by Kevin MacLeod. Very dark and fitting for the video.

I also recovered the source to the intro *Invention* released at The Gathering 1994, mentioned many pages ago. It had an interrupt bug that was fixed, and I released the revised source code and new Amiga executable. I still have some plans for that one: Instead of using the 2x2 display, I'd use 3x3 and render the text on top somehow. It's possible with some more creative use of color planes. And get rid of the ridiculously bad pause while it precalculates the last part. The source also had an almost finished tunnel effect that didn't get used. At this rate I'll get to it in 2025.

Actual restored frame from *Dreamscape: The Missing Scene*:



The code was pretty much the same as the one used to make the videos in the previous chapter. The only differences being more still images and the generation of the filler frames by weighing current and next frame to create an illusion of higher framerate. The Final Cut used a scale factor of 0.65 and 3 filler frames, while The Missing Scene used 0.80 and 4.



2019 wasn't a great year, and the end picture in The Final Cut has a visual dedication. It's an outline of Keith Flint's signature: He was the lead vocalist in The Prodigy after Music for the Jilted Generation was released. He died in 2019. Another great performer and singer lost. We will always remember the greatness of the *Firestarter* video, and the sonic renewal of The Prodigy on the album *The Fat of the Land*.

The end picture in Dreamscape: The Missing Scene also has a visual dedication: It's to Adam Yauch, also known as MCA in Beastie Boys. As mentioned earlier, he died in 2012. Another renowned artist lost. His music and movies will live on for centuries to come.

