



The Man Behind the Blu-rays

With Josh Rubinstein

People said it would never be done, and yet every episode of *TNG* has been meticulously digitally remastered. Josh Rubinstein would like to say he was right in the middle of it. But he was more like the closing pitcher of a baseball game.

“I was the lead Blu-ray author on the *TNG* Blu-rays,” he explains. “I joined CBS in 2011, and it was like this very hush-hush, secretive thing. They didn’t want to tell anybody what was going on yet. They didn’t want it getting out that they were attempting to do this remaster of *TNG*. So all of this was going on around me, and I had to keep my mouth shut for about a year, a year and a half until they finally made the official announcement.”

It would ultimately be up to Rubinstein to get everybody else’s work in a format that could be put on store shelves. “Basically, after all the remastering was done and all the audio sweetening was done, visual effects, subtitles, and other elements were completed, I would take all of that stuff and I would put together the working Blu-rays out of it all.”

Rumors of a possible *TNG* remaster had been around for a while, but when the remastered versions of *TOS* proved a hit, talk of *TNG* on Blu-ray lit up the internet message boards.

“*TOS -R* was a fairly big success. It did well commercially because it was the fortieth anniversary, and they were broadcasting it. It was in the zeitgeist fairly prominently, so there were a lot of people who knew it and wanted to check it out. People knew that updating *Star Trek* was a really big deal. And with the fans, one of the first questions that a lot of them started asking was ‘When are you going to start doing *TNG*?’ or ‘are you going to do *TNG*?’ And there was a lot of speculation among fans saying, ‘Oh, well *TNG* could never be done. It would be way too costly.’”

Such an assumption was not made in ignorance. *TNG* not only had four more seasons of episodes than *TOS*, but *TNG* was not originally edited together in high definition, making a simple transfer to HD impossible.

“A lot of fans thought CBS would never do it. They were essentially saying, ‘It would be really cool if you did remaster *TNG*, but odds are you’re not going to.’ But Craig Weiss, the Executive Director of Visual Effects for CBS Digital, he would hear that and he’d be like, ‘Okay, but what if we did do it? How would that work?’ And he would talk to [*Star Trek* experts] Michael and Denise Okuda about that, and it was something they wanted to do pretty much from the start after they finished remastering *TOS*. But they also knew it was going to take a lot of effort; it was going to take a lot of money. When they did the Blu-ray collection for the original series, they had this special disc for ‘The Trouble with Tribbles’ that included essentially an up-res version of the *DS9* tribble episode, and it looked terrible. It’s almost unwatchably bad. And they did a couple tests early on with *TNG*, just doing standard up-resing, not really remastering in any way just to see how it looked, and Craig and the Okudas and everybody all pretty much said, ‘We can’t do it this way. If we’re going to put *TNG* on Blu-ray it’s got to be full restoration. That required going into the archives, finding all of the old scripts, all of the old shooting logs, all the old editing logs, and finding every single daily. (They were all in this vault in a salt mine in Pennsylvania.) And then it became taking all of that, putting it all back together, because all the episodes were originally edited on video. So there was no film work print they could use. So they had to go through all the edit decision lists, find all the original shots, reedit every episode, and sort of do eye-matching just to make sure that each just to make sure that each shot was exactly the right one and then going through the whole telecine, scanning it in, and remaster the visuals. Then they had to find all the old film elements for all the old ship effects, scan all of those in, and recomposite them with today’s technology. There were a few instances where we did have to use CGI effects just because we didn’t have the effects or the effects themselves were very early 1990s CG and just looked terrible. Like the Crystalline Entity in ‘Datalore’ and ‘Silicon Avatar’. And there are a few shots of the Enterprise scattered throughout the series that we didn’t have that specific element for, so we had to recreate it with CG, but it looks so good you can’t tell the difference. Michael and Denise Okuda were pretty much overseeing the restoration and kind of like signing off on it as they went along. And in the end, about the only thing the team didn’t have to do was reshoot the episode!

Meanwhile, Rubinstein faced challenges of his own.

“I had never done a Blu-ray before,” he admits. “We didn’t have the equipment. And so when they came to me and said, ‘If we got you the Blu-ray equipment, can you do it?’ I sort of said, ‘Well, yeah, if I had the equipment and I have time play around with it, sure I can do it.’ Because I wanted the job. So they bring all the equipment in, and I have to sit there and pretty much figure out from scratch how to make a Blu-ray, and not only that, how to make a *Star Trek* Blu-ray. So it was learning the system, learning the techniques, learning the software, and then figuring out all the different ways you can play with it to

make it very *Star Trek*ie, like to have the “Okudagrams” as they call it, those *TNG* computer panels designed by Mike and Denise... have them appear and disappear and have them sort of behave the way a *TNG* computer would on screen. And it took months of experimentation. It was really a baptism by fire. I put a lot of pressure on myself, because I was like, 'If I'm not able to do this, and I'm not able to do it in the time frame that they want, then we lose this project and they may not even go all seven seasons with it.' So it really felt like this was on me to accomplish, otherwise we don't get *TNG*. It was a lot of sleepless nights, and it was a lot of really long hours very fervently teaching myself an entirely new format.”

On the plus side, Rubinstein was able to watch a lot of *TNG*!

“I didn't have to, but I did. It was lot of fun to see the old episodes and see them look so good. One of the things I really liked was that we took certain two part episodes, like ‘The Best of Both Worlds’ and we created special versions of them that actually took the two parts and put them together into one feature length episode, and I love the way that that turned out. With ‘Best of Both Worlds’, they put a lot of work into that one specifically because it was such a big, classic episode. So there are planetscapes that are much richer, the Borg cube looks amazing, and the explosion at the end looks way better than it ever did before. And another one that I really liked was ‘The Measure of a Man’ from season two, which is the one where Data is put on trial to prove that he's a sentient being and not just a tool. The writer of that episode, Melinda Snodgrass, happened to have (in her closet) a VHS copy of an old work print of that with a whole bunch of extended and deleted scenes. And so we took that VHS and used it as sort of a guide book to create the only ever extended episode of *TNG*. And it's really well done. It's really cool.”

Fans would probably give Rubinstein a pass for skipping the second season finale, “Shades of Grey”, but Rubinstein endured it.

“I watched it, yeah. I personally did not remember it all that well, and when I watched it I was like, 'This is a terrible episode! This is just a clip show!' But you have to do it for completion sake. Seasons three, four, and five, those are like the best seasons of the show. So you sort of do this mediocre season so you can get to the really good stuff, which is the stuff that everybody wants.”

Rubinstein and the rest of the team worked in the same building, allowing them to grow especially close.

“It was really fun seeing this whole team come together and seeing everyone sort of working in tandem with each other because you had lots of different departments doing lots of different very specialized things, but we're all in this same space. So we were all sort of looking over each others' shoulders and getting to know everybody and getting to see the process as a whole instead of getting this myopic view of your job and your job only. And with the same people who did the *TOS* remastered project, there were a lot of people who were working on it who would say, 'Oh yeah, we did this sort of thing on *TOS*, and this was how we did it.' For example, when it came to planets and the backdrops, we had Max Gabl who was keeping all this stuff on file. He was our planet guy and just a great artist. You know, in the old version of *TNG* when the

Enterprise was in orbit of a planet, the sphere would look pretty much like a nicely colored ball. That was pretty much it. But now on the Blu-rays they look like fully fleshed out planets. Like you can see continents, you can see weather patterns, and it adds a sense of realism to it. On planets with matte paintings, Max was able to sort of enhance the details of those matte paintings or add new details to them and make those bigger and more expansive.”

Seeing the project come together also gave Rubinstein an appreciation for keeping the original aspect ratio.

“Yeah, one of the big arguments that a lot of fans would bring up was, 'Well it was shot on film, so that means you can do a 16 by 9 version of all the episodes..' And we had to tell them, 'No you can't.' Because while the show itself was shot on film stock that could be opened up if you wanted it to, it was framed for the four by three box. So if you open up those mattes, you'll see C-stands, you'll see personal assistants sitting off to the side... there's this one great shot of La Forge talking into his communicator, a fairly close-up shot, and he's talking to Riker, so he taps his communicator and starts speaking, and if you were to open up that matte, you would see right next to him, answering, is Jonathan Frakes!”

Unfortunately, sometimes mistakes slipped into even the 4 by 3 shots, unnoticed by the shooting crew, only to be discovered by fans when the episodes originally aired. The team left most these in the Blu-ray versions of the episodes.

“Mike and Denise Okuda were very adamant that it should be the exact same shot, the same as the director's intention. If there's a mistake, keep the mistake because some fans will probably notice if a mistake is gone and become upset. So little things like a boom still in the shot or there are some scenes where you can see a cameraman reflected in the surface or something like that... most of that is still in there. On some occasions, however, we felt we had to fix some issues where the mistake was just too distracting. And we did apply a standard color correction on all the episodes. One of the funniest things we discovered was that the red of the command uniforms is actually a very different shade of red than what was originally broadcast. In the original broadcast, it sort of looked a little more magenta, and we would always joke about cosplayers having used the wrong color for the last twenty years!”

In the end, of course, it was Rubinstein who put the finishing touches on the project.

“For me, it was a very weird schedule, because the others would finish the remastering and that went to my desk, and it was usually at least a few months or even longer before I finished the Blu-ray. Everybody else, their job has been done for months, and I'm still here working on it. When I was finishing, I told everybody who was still there, 'Hey, I'm finishing up the Blu-ray of season seven. We're officially wrapped on *Star Trek TNG*!' We had talked about doing a wrap party, but that never really happened. It sort of ended, and it was like, 'On to the next job.' But it was a great experience working on it. It was a learning experience, and we won two Saturn awards for it which I'm extraordinarily proud of.”