9 EMMY® NOMINATIONS INCLUIDING
OUTSTANDING DRAMA SERIES
OUTSTANDING SOUND MIXING
FOR A COMEDY OR DRAMA SERIES (ONE HOUR)
LARRY BENJAMIN, KEVIN VALENTINE, FELIPE ‘FLIP’ BORRERO, DAVID MICHAEL TORRES, CAS

“COMPPELLING.”
TV INSIDER

“EPIC.”
THE GLOBE AND MAIL

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Cover: Collage of CAS stories
**THE PRESIDENT’S LETTER**

### The summer is in full swing

and we have been hard at work organizing a membership meeting, some summer adventures, and co-sponsored events to increase your membership value. So, please keep your eyes open for e-blasts coming your way.

Also, I am very pleased to announce AMPAS has released the dates for their Oscar celebrations for the next couple of years and they are turning back the clock. While just two weeks earlier this year, the ripple effect of this year’s Oscar date affected many professional organizations, including our own. Indeed, the February 9, 2020, date of this year’s Oscars will be the earliest show ever. As a result, our award date of January 25, 2020, is abnormally early.

But there has been much good to come out of the recent re-examination of schedules and eligibility periods. This year, the CAS has addressed a longtime concern we have received from our members who mix for television. In the past, our eligibility period was annual but our entry deadline was in the fall. This meant that folks that were booked on last-quarter mixes, this could include mid-season episodes, finales, limited series, late-season airing series, or television movies and specials, were not able to choose from their complete catalogue of work to enter for a CAS Award.

So now, in an effort to allow for the inclusion and recognition of all of your work, the eligibility period after the entry deadline has been decreased. This means that this year, we will have a smaller eligibility period for television contenders of January 1, 2019, and October 31, 2019. But, the timeline for next year will be November 1, 2019, through October 31, 2020. Providing an eligibility period that ends close to our entry deadline allows more members of the television community to have the opportunity to complete, submit their work, participate, and be celebrated. This is not only similar to The Television Academy model but this same change was also made this year by our sisters and brothers at American Cinema Editors (ACE). It is our hope that this new schedule will herald a period of increased participation from our members.

The nominees for the 71st Emmys in Sound Mixing have been announced and CAS members are dominating the competition. Please join me in congratulating the following members on their nominations: **Elmo Ponsdomenech CAS, Benjamin Patrick CAS, Dean Okrand CAS, Brian R. Harman CAS, Stephen Tibbo CAS, Michael Hoffman CAS, John W. Cook II CAS, William Freesh CAS, William MacPherson CAS, George A. Lara CAS, Mathew Price CAS, Ron Bochar CAS, Sylvain Arseneault CAS, David Michael Torres CAS, Felipe ‘Flip’ Borreiro CAS, Larry Benjamin CAS, Brett Voss CAS, Benny Mouthon CAS, Ronan Hill CAS, Mathew Waters CAS, Onnalee Blank CAS, Phillip W. Palmer CAS, Geoffrey Patterson CAS, Joseph White Jr. CAS, Robert Johanson CAS, Tateum Kohut CAS, Greg Orloff CAS, Joe DeAngelis CAS, Jan McLaughlin CAS, Tom Fleischman CAS, Patrick Baltzell CAS, and Tommy Vicari CAS.**

Additionally, new AMPAS members have been announced and we send a huge congratulations to CAS members **Brian Saunders CAS, Carlos Solis CAS, and Trevor Ward CAS** who have received the honor, as well as our CAS publicist Dorothea Sargent.

Finally, I would like to recognize Matt Foglia CAS, Quarterly editor in chief, assisted by Stephen Tibbo CAS, Publishing Committee chair, and Carol Thomas, our organizational manager, on this—their inaugural issue of the CAS Quarterly. The CAS is indebted to you for your hard work.

Hoping to see you all soon at upcoming events.

**Karol Urban CAS MPSE**

President

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**CAS SUMMER 2019**

**NEW MEMBERS**

**Active**
- Adam Howell
- Justin Jose
- Dmitriy Kliminov
- Filip Kozemien
- Paul Massey
- Stacey Michaels
- Jemma Riley-Tolch
- Christopher Scarabosio
- Zach Seivers
- Arno Stephanian
- Graham Timmer
- John Warrin

**Associate**
- Chris Kahwaty
- Jifu Li
- Brandon Loulias
- Jared Marshack
- Christopher Shilakes
- John St. Denis

**Student**
- Jackson Collins Jr.
- Rachel Boissevain
- Todd Jacobs
- Haoran Li
- Bob Merkl
- Ember Rose
- Peter Schweitzer
10 EMMY® NOMINATIONS
INCLUDING
OUTSTANDING DOCUMENTARY OR NONFICTION SERIES
OUTSTANDING SOUND MIXING FOR A NONFICTION PROGRAM (SINGLE OR MULTI-CAMERA)
GRAHAM WILD

“THE MOST NECESSARY VIEWING OF THE TV SEASON.”
TV GUIDE

OUR PLANET
Welcome to the summer Quarterly, CAS members and friends. I hope your summer is providing a good balance of business and pleasure. Speaking of balance, we have a great “mix” of content for you this quarter.

On the production side, Devendra Cleary CAS takes the Zaxcom URX100 receiver for a test drive and Bill MacPherson CAS recaps his seven seasons as production mixer on the series Veep. Also, CAS Associate member Patrick Spain takes us for a walk on the dialogue trail from production through post in his article “Dialogue’s Chain of Custody: From Set to Screen.”

Over in post, Karol Urban CAS MPSE sits down with the mixers of the Netflix interactive film Black Mirror: Bandersnatch and discusses some of the approaches and challenges of working on a nonlinear narrative of this length. Peter Kelsey CAS checked in with some facilities to gain insight and advice on building or modifying rooms for Dolby Atmos certification. Also, on the topic of monitoring, we can’t forget about the most important piece of gear: our ears! I had the opportunity to explore Genelec’s new “Aural ID” and discuss my experience in these pages. In short, this is analogous to a fingerprint—but for your ears—and is intended to help improve the accuracy of headphone monitoring relative to loudspeaker monitoring.

Also, David Bondelevitch CAS MPSE reports back from AES Dublin and also shares some photos from NAB. Finally, don’t forget to read about the happenings of your fellow members in the “Been There Done That” and “The Lighter Side” sections.

The CAS Quarterly is produced as a service to our members and relies on their voluntary nature. We greatly appreciate, and want, your feedback and suggestions—so send them in! If you’re interested in contributing or have an idea for an article, let us know (Associate and Student members, this means you, too!). Email us at CASQuarterly@CinemaAudioSociety.org. Remember, our sponsors are professionals like you who understand the business and the needs of our industry. We encourage your commitment to them.

Matt Foglia CAS

CORRECTION: In the last printed version of the CAS Quarterly, we erroneously attributed an incorrect writer as the author of the “Meet the Winners” article on Bohemian Rhapsody. The article was actually written by Peter Kelsey CAS, who was once drummer Roger Taylor’s roommate! Be sure to read Peter’s fascinating first-person recollection of being present during the formation of Smile and Queen. The article begins on page 18 of the 2019 spring edition.

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16 EMMY® NOMINATIONS
INCLUDING OUTSTANDING LIMITED SERIES
OUTSTANDING SOUND MIXING
FOR A LIMITED SERIES OR MOVIE
JOE DeANGELIS | CHRIS CARPENTER | JAN McLAUGHLIN

“A MASTERCIPLE.”
NPR

“A SEARING PORTRAIT
OF INJUSTICE AND
INNOCENCE LOST.”
THE BOSTON GLOBE

FROM THE EMMY®
AWARD WINNING DIRECTOR
OF 13TH AVA DUVERNAY
David Bondelevitch CAS MPSE
is a re-recording mixer and educator who has won two Emmy Awards. He has also won two MPSE Golden Reel Awards and has been nominated 22 times. He is Past President of the Motion Picture Sound Editors. David has been the Secretary of the Cinema Audio Society since 2012 and has been on the Board of Directors since 2003. He has been writing for the CAS Quarterly magazine since 2006 and was co-editor in 2007.

His most recent projects include mixing the documentary Empty Net, about the US Paralympics sled hockey team that aired on NBC Sports. He also mixed the documentary Southwest of Salem, which recently won a Peabody Award. He also mixed the cult comedy Jimmy Vestvood: American Hero, starring Persian-American comedian Maz Jobrani.

David is also an assistant professor at CU Denver. David received his MFA in Cinema Production from USC. He also holds a Bachelor of Music in Jazz Composition from the Berklee College of Music in Boston.

Matt Foglia CAS
is a two-time CAS Award-winning, Emmy-nominated re-recording mixer and educator based in Nashville. Starting his career in NYC, Matt was a sound engineer for Sony Music Studios before taking the post of Chief Audio Engineer for PostWorks New York in 2001. Matt has mixed hundreds of hours of programming for networks such as Comedy Central, Discovery, ESPN, HBO, MTV, PBS, truTV, and VH1 and for artists, including Bruce Springsteen, Paul McCartney, Ozzy Osbourne, My Morning Jacket, and Phish.

Matt left NYC in 2008 after accepting a faculty position at Middle Tennessee State University where he is a tenured professor teaching undergraduate and graduate courses relating to sound for picture. Matt has been the co-editor of the CAS Quarterly since the fall 2007 issue. Matt loves spending time with his wife and two teenagers, playing guitar and discussing the nuances of the Beatles, Kiss, and Billy Joel. Matt continues to mix and edit remotely for clients.

Devendra Cleary CAS
is a Los Angeles-based production sound mixer who has just completed Season 1 of Mayans M.C. for FX and is currently working on Schooled for ABC. He is an Executive Board member for I.A.T.S.E. Local 695 and a frequent contributor to the CAS Quarterly. He joined the CAS as an Associate member in 1999 and became a full member in 2008.

Peter Kelsey CAS
started his career in sound at the illustrious independent recording studio Trident Studios, where all the early Elton John and David Bowie albums were recorded. Here, Peter learned from engineers and producers such as Rupert Hine, Ken Scott, Roy Thomas Baker, Robin Geoffrey Cable, and David Hentschel. He was a second engineer on the Carly Simon album No Secrets and part of the mixing team for Elton John’s album Goodbye Yellow Brick Road.

After moving to the USA, he did a lot of work as a scoring mixer before moving into post-production sound. He has worked on many David Kelley shows, including Ally McBeal and Boston Legal, for both of which he won sound mixing Emmys. He worked for RH Factor for many years and for the last three years, has worked for Smart Post Sound. He is currently working on Speechless, The Chi, Arrested Development, and Dead to Me.

Peter has a degree in mathematics, a black belt in taekwondo, and loves public speaking.

Bill MacPherson CAS
William “Bill” MacPherson lives in Northern California with Kim, his beautiful wife of 36 years. He attended UC San Diego, owned and operated a 24-track recording studio, served as sound consultant and reinforcement/recording engineer for the San Diego Symphony and the San Diego Opera. Bill is a proud disciple of the Jim Webb/Kay Rose sound lineage. With Crew Chamberlain on boom, Webb mentored Bill as an integral part of his team to experience production sound mixing on an A-list level. Jim and Crew provided friendship, expertise, and humor that would last a lifetime. As a sound effects recordist for Kay Rose, Bill discovered the power of spatial FX combined with well-recorded production sound. A 35-year veteran of Local 695, he has other credentials as well. Look for his upcoming blog, “I’ve heard it all.”

Patrick Spain
began his career in the scoring world at Signet Sound in 2001 working on varied films like Cars and Eternal Sunshine of the Spotless Mind. In 2006, he was hired at the venerable Ocean Way Recording (now renamed United Recording), this time working on everything from Dr. Dre productions to John Mayer records to the score for Avatar. In 2011, Patrick was hired as a mix tech at the industry leading Todd-AO Lantana stages in Santa Monica. His very first day there was an FX playback of a single reel of Avengers for director Joss Whedon on the same stage where Saving Private Ryan was mixed! It was in this incredible environment that Patrick learned the ropes of film and television audio post from some of the best re-recording mixers, editors, and sound supervisors in the world. He worked on shows as different as the run-and-gun feature Lone Survivor to HBO’s Girls to the music centric hit Nashville. After the closing of Todd-AO, Patrick worked a quick stint at Technicolor Sound Services, and then made the jump to freelancing as a re-recording mixer full time. In that time, Patrick has mixed for clients such as Netflix, Disney, WB, ABC, and DreamWorks.
2 EMMY® NOMINATIONS
INCLUDING
OUTSTANDING SOUND EDITING
FOR A COMEDY OR DRAMA SERIES (ONE HOUR)

BENJAMIN COOK, MPSE
CO-SUPERVISING SOUND EDITOR

JON WAKEHAM
CO-SUPERVISING SOUND EDITOR

HECTOR GIKA
SOUND EFFECTS EDITOR

DAVID ESPARZA, MPSE
SOUND EFFECTS EDITOR

TIM TUCHRELLO
DIALOGUE EDITOR

ALEX LEVY
MUSIC EDITOR

BRETT VOSS
FOLEY EDITOR

JEFF WILHOIT
FOLEY ARTIST

DYLAN TUOMY-WILHOIT
FOLEY ARTIST

“SMART AND CONFIDENT.”
— Rolling Stone

TOM CLANCY’S
JACK RYAN
AMAZON ORIGINAL

FYC | prime video
20 EMMY NOMINATIONS
INCLUDING
OUTSTANDING SOUND MIXING FOR A COMEDY OR DRAMA SERIES (ONE HOUR)

MATHEW PRICE, CAS
RON BOCHAR, CAS
GEORGE A. LARA
DAVID BOULTON
PRODUCTION SOUND MIXER
RE-RECORDING MIXER
FOLEY MIXER
ADR MIXER

Marvelous

WINNER
CAS AWARD
OUTSTANDING ACHIEVEMENT IN SOUND MIXING FOR TV SERIES (ONE HOUR)

“STILL MARVELOUS, SEASON 2 IS AS DAZZLING AS YOU HOPED FOR AND EVEN MORE AMBITIOUS. IT’S TRULY REVOLUTIONARY.”
— THE DAILY BEAST
Tech Review: Zaxcom URX100

INTRODUCTION
In an unprecedented level of speed, I received a UPS overnight package from Pompton Plains, New Jersey, containing the new Zaxcom URX system, along with a proprietary lanyard for walkie-talkie integration and two Motorola walkie-talkies for testing purposes. Coincidentally, my friend and colleague Doc Justice CAS and I had plans to hang and geek out about all things equipment related this exact day. With great interest and excitement, we unboxed the pieces and, as promised, they performed their duties right out of the box. The ZMT transmitter supplied with the kit was already labeled “Devendra” and the metadata from the transmitter also showed up on the URX receiver upon power up. Doc was a walking/talking instruction manual for these units and we dove right in.

FIRST IMPRESSIONS
I always like to put my hands on the equipment I’m testing and get a feel for the weight and texture and build quality. I also like to see what powering choices the manufacturer made and, most importantly (to me), the aesthetics. The URX100 positively checked all of these boxes! The all-black exterior and matte finish looks very slick. Everything has soft edges and feels well-built and sturdy. Now, to test out the sound quality, walkie-talkie feature and, most importantly, the range!

THE UNFAIR RANGE TESTS
Whenever I test the range of any wireless system, I like to do an “unfair range test” where I intentionally put certain roadblocks onto the system. This routine is the same whether I’m walk-testing a transmitter worn or a receiver worn, like in this case. Often, these initial tests are done at my office in Santa Monica, which somewhat emulates a mini soundstage. Plus, this quiet environment allows me to really hear the way the system sounds (more on that later).

First, with the sound cart positioned inside my office. The tests included walking away from the cart and out of the office, which causes it to be severely disadvantaged because of the sheetrock walls and low antennae positions. I also include one more layer of taking the item outside the concrete walls of the building.

With the ZMT transmitter set to only 50 mW, I started walking outside the building, which is about 200 feet from the cart position and, as mentioned, outside a concrete structure. After about 20 more feet, the URX receiver started to drop out. I remembered how disadvantaged the transmitter was inside the building and then inside my drywall box of an office. Also, many digital wireless systems I’m having the opportunity to test out are transmitting at a much lower power than legacy, analog UHF systems.

Immediately after this first walk, I grabbed my Lectrosonics IFBR1a receiver and fired up its transmitter from the same sound cart position in my office. I thought this would walk further past the 20 extra feet the URX walked, but it only walked a few paces further. To be absolutely fair, the Lectrosonics IFB system has an external antenna which adds a bit of gain and was transmitting to its default 250 mW power setting. So, honestly this proved to be a similar, real-world walk test with much lower power output.

I then grabbed my Lectrosonics VHF IFBR1a receiver to do another comparison. This VHF system is limited to 50 mW power output and walked to the same exact outside spot where the URX experienced drop outs. Visually, where I walked was concerning for all three systems, as it didn’t appear to be in line with where we
OUTSTANDING SOUND MIXING FOR A LIMITED SERIES OR MOVIE

JOSEPH WHITE JR., CAS
TONY VOLANTE
BOBBY JOHANSON
DERIK LEE

“ALL I CARE ABOUT IS LOVE”
should expect IFB systems to operate.

Now to do some more fair walk tests where the IFB transmitters for all three systems won’t be boxed-up in sheetrock and cement with low antennae positions.

REAL-WORLD TESTS
Stage 3 at CBS Radford is pretty isolated these days. Only because it’s the slow TV time and this stage is on the far west side of the lot. I was mixing a second unit day on a show here and had some time do more walk tests. Chloe Patenaude was working with me as utility and agreed to help. Tests were done with the same sound cart as before but this time set up at about the center of the soundstage. We did walk tests initially with 50 mW and 75 mW of power output on the ZMT. In both settings, it threw the whole stage without a problem.

Stages that use metal mesh grating to secure the Insul-Quilt on the walls often emulate a leaky Faraday cage. Really to the detriment of our cellphone signals, it is to our advantage for talent wireless reception. When the utility sound technician wearing an IFB spends time going to and from the camera/sound truck and talent trailers, IFB reception can be detrimental with transmissions that don’t penetrate walls very well like lower power digital systems. Once Chloe left the stage, her reception was gone. But as soon as she walked back in, the signal immediately returned and was clear as day.

Since we’re comparing to a system that runs in a lesser quality IFB mode, Chloe couldn’t help but notice the sound quality of the URX. She said it sounded so clear that it was like listening off headphones straight from the recorder. This quality alone makes the case for using this system for your boom operators and utility sound technicians. Many of these professionals came up listening to program audio hardwired via duplex cables. This would be a welcomed throwback to that time in regard to ear candy. Those younger who have only ever listened to program audio from a Comtek or IFB belt pack will experience some ear candy that has not been a part of their routine—and will also welcome it. Another quality that would be welcomed in a world where radio miking has become their whole life is a feature that allows for individual transmitter monitoring.

GIVING YOUR CREW PFL
The ability to listen to individual talent transmitters on the URX is like giving the gift of mobile PFL. A luxury usually only afforded to the person in charge of the mixing console, this tool can now be used in the fast-paced, radio mics-everywhere world of modern production. This ability is only an option if you are utilizing Zaxcom transmitters on talent. You name the individual transmitters and they are now on the ZaxNet network. On the URX, you can scroll through the list of names that you gave the transmitters to and spot listen to their mic placement without asking the sound mixer to “bring up their mic.” The faces of all utility sound technicians whom I told about this feature instantly lit up! They ALL find this to be something very useful.

WALKIE-TALKIE INTEGRATION
A handy walkie lanyard was supplied with this kit, along with a couple of Motorola walkie-talkies. This is such an innovative idea! It also allows you to use your favorite IEMs or handphones, since you’re plugging directly into the URX100 and the walkie-talkie is patched into the system via a TA5 side connector.

Production sound crews on most
reality TV shows, and maybe a few narrative TV shows and movies, use a production-issued walkie-talkie in order to stay plugged into the workflow and timing of the production department. Some sound mixers patch the walkie signal into the mixing board and mix it into the IFB feed. This is great for selective monitoring of the production channel but does not allow for any verbal reply from the sound department. For some, utilizing a walkie-talkie is as simple as having the utility sound technician or A2 wear their own walkie with a surveillance mic and earpiece. Most likely, they have to share their ears with the walkie and IFB system where the surveillance mic set’s earpiece is in one ear and another single earpiece or over-the-ear headphone is placed on one or both ears for listening to the IFB feed. Some use a specially wired surveillance mic set that has a combining cable used to feed a signal from the walkie and IFB. You then set your own mix by balancing the walkie and IFB sources. Depending on the brand of the IFB, they have to be wired differently so several versions are available. This is often not ideal as it forces the user to monitor the IFB program material from a lesser quality earpiece supplied with the surveillance mic. A similar rig available includes this same concept of a combiner cable tapping off of the walkie and IFB, but is terminated to a female 1/8” connector for use with your favorite headphones (or IEMs) where you also create your own listening mix by adjusting the volume of the walkie and IFB to the desired balance. Sound complicated? Well, it doesn’t have to be.

This URX receiver with walkie-talkie integration cleans all of this up. The production-issued walkie plugs directly into the URX100 via a TA5 connector on the side, the Zaxcom lanyard plugs into the 1/8” headphone out, and you plug your headphones or IEMs into that. The lanyard has a push-to-talk button that remotely operates the push-to-talk of the walkie, allowing for sound department reply. The lanyard also gives the user easier access to the volume control of the URX100 so they don’t have to twist and reach for it on their belt. Pretty slick.

**CONCLUSION**

I love testing new technology that is specifically designed and manufactured for our unique sector of audio engineering. I want to thank Doc Justice CAS for providing some insight on initial operation of these units, and I want to thank Gene Martin CAS for shipping the units back once I was done with my tests. I want to thank Glenn Sanders and Colleen Goodsir for letting me get my hands on this new tech to put through the paces.

Zaxcom is always doing something innovative and listening to their customers about what kinds of creative solutions are needed in our niche market. Thank you for making these products for our family of users in production sound. Keep up the good work!
TV is in a new era. Streaming services such as Netflix, Amazon, and Apple are proliferating and can stream immersive audio. And Dolby is at the forefront of immersive sound with Dolby Atmos. There are now even sound bars and systems you can set up in your home that use reflections off the ceiling and walls to simulate height speakers and allow you to enjoy an immersive sound experience.

Netflix, Amazon, and Apple, as well as many other networks, will all be requiring deliverables that include a Dolby Atmos mix. You can get the specs from Dolby as to what it takes to set up a Dolby Atmos space as having a Dolby Atmos certification may give you a leg up over competitors hustling to win Dolby Atmos shows from these content providers.

There are two specifications for Dolby Atmos certified mixing rooms. One is for a Theatrical certification and the other is for a Home Entertainment certification.
DIRECT FROM DOLBY’S DOCUMENTATION, WE LEARN THIS ABOUT THE THEATRICAL CERTIFICATION:

“Dolby Atmos theatrical studio certification is confirmation to clients of the capability and quality of a dubbing studio and that soundtracks produced in it will be faithfully reproduced in cinemas worldwide.

The program is designed to ensure the highest level of quality in audio post-production. It is specifically concerned with standardization of the electroacoustical monitoring path, standardization of deliverables, and a common reference to allow the interchange of material between all Dolby certified studios.

THEATRICAL CERTIFICATION PROVIDES THESE BENEFITS:

• Consultation and certification of room geometry, room acoustics, room layout, speaker positioning, audio equipment specification, projection equipment specification, and electroacoustic performance
• Ongoing technical support, including engineering and training visits
• Loan of Dolby theatrical mix and encoding hardware and software, including the hardware Dolby Rendering and Mastering Unit (RMU), exclusively used for the mastering of theatrical soundtracks in Dolby Atmos (if installing Dolby Atmos)
• Use of the Dolby brand on marketing material
• Dolby Atmos theatrical studio certification wall plaque and additional promotional items
• Listing on the www.Dolby.com website as a certified theatrical Dolby Atmos mix studio (if applicable)”

Photos show the building of the Theatrical Atmos room at Periscope Post & Audio
CONCERNING HOME ENTERTAINMENT CERTIFICATION, WE LEARN:

“The purpose of this Dolby certification program is to provide an industry recognized mark of technical excellence for the creation of Dolby Atmos content for home entertainment.

The program offers consultation and certification of room geometry, room acoustics, speaker positioning and electroacoustic performance, mix equipment, and Dolby Atmos rendering solutions. All of these factors ensure that each room is configured for optimum performance.

ADDITIONAL BENEFITS OF THE PROGRAM INCLUDE:
• Room commissioning performed by a Dolby engineer
• Ongoing technical support, including a yearly engineering visit and training
• Use of the Dolby brand on marketing material
• Dolby Atmos home entertainment studio certification wall plaque and trophy
• Listing on the Dolby.com website as a certified Dolby Atmos mix studio”

I spoke to Scott Oyster, design consultant at Signature Post, and Ben Benedetti, the general manager of Periscope Post & Audio, as they are both in the process of constructing facilities that will be certified for both Theatrical and Home Entertainment Dolby Atmos. Additionally, I also communicated with Doug Kent, President of Westwind Media, who is outfitting existing dub stages with Atmos but also seeking Home Entertainment certification.

Signature Post is owned by Greg Stone who also owns SPG Studios. The facility is being constructed in the building formerly occupied by RH Factor. Greg basically stripped everything out of that building and is constructing from scratch. Signature Post is expecting to be up and running by September or October this year.

Ben Benedetti consulted with Jim Pace of Audio Intervisual Design and their Theatrical room is expected to be up and running by August. Their other Atmos rooms are due to be functional just a few months later.

Westwind has been creating sound for picture since 1997, but they are committed to keeping their stages current. Doug explains:

“At Westwind, we converted two dub stages in the past few years to Dolby Atmos, and we’re in the process of upgrading a third stage. The first two were completed prior to the publication of the Home Entertainment spec, so we are working closely with Dolby to make the necessary adjustments to be certified to the current standard.”

Existing rooms may not fall within the current specifications supplied by Dolby, especially those designated for Home Entertainment. To this end, Dolby will work with you to see how you can be as close as possible to their specs and if a concession is possible to reach certification.

While both Scott and Ben emphasized that it is very important to sit down early with Dolby, it appears the company is willing to help you in every way they can at any stage to meet their specifications. But depending on what you’re starting with, the adjustments may be large or small.

All are very excited about the prospect of having Dolby Atmos rooms and to quote Ben:

“THE IMMERSIVE SOUND EXPERIENCE PROVIDED BY ATMOS IS TRULY UNIQUE AND WONDERFUL. IT CAN BRING A LEVEL OF JOY TO CONSUMING MOVING PICTURES THAT MAKES IT A LOT OF Fun. WE ARE HAVING ALL OUR ROOMS READY FOR ATMOS AT PERISCOPE POST & AUDIO.”

Now, getting down to the details.

Scott recommends you have Dolby explain the DARDT to you. DARDT stands for Dolby Audio Room Design Tool and it is the Excel spreadsheet that details the room you are building for Atmos. Once you enter the dimensions of your room, the DARDT will let you know if you are within Dolby specs.

If you are building a Theatrical room, you have to be certified by Dolby as they are loaning you the RMU dependent on your spec compliance. This is not necessarily the case with a Home Entertainment Atmos room, but this method is highly recommended as, without it,
you may not get work from the larger streaming services. Doug Kent feels “it is critical that our stages be compliant, as the Atmos Home Entertainment spec will be the standard deliverable for most of our clients going forward.”

Scott suggested that you should go over your room dimensions to make sure you are falling within the correct ratios. There is often a height-to-width ratio problem for Theatrical. This was completely evidenced by the fact that at Periscope, the construction was constrained by the ceiling height of 11 feet and the other dimensions of the room had to be made smaller to fall within Dolby’s ratios. And at Signature Post, they had to raise the ceiling of their Theatrical room to meet those ratios. Finally at Westwind, they were able to employ relatively small adjustments to fit the necessary ratios into their existing spaces. Doug explains why:

The basic difference between Theatrical and Home Entertainment requirements is best summed up by this quote from Scott Oyster:

“IN THEATRICAL, YOU MEASURE YOUR ROOM. IN HOME ENTERTAINMENT, YOU MEASURE THE DISTANCE BETWEEN SPEAKERS AND, IN FACT, YOU MEASURE THE ANGLES FROM THE MIX POSITION TO THE SPEAKERS.”

In Theatrical, the DARDT lays out your speaker positions. In Home Entertainment, the DARDT specifies the angles of speakers to your mix position.

So, essentially, what you need to worry about early on are room dimension ratios for Theatrical and staying within a maximum distance and achieving the angles specified in the DARDT for Home Entertainment.

If your Home Entertainment room is long, you can still move your rear speakers forward so that they conform to the correct angles. The back of the room that is behind the rear speakers is not a critical listening position. All speakers are angled toward the mix position.

There are a couple of other differences as well. For instance, only Theatrical has bass managed rear sub woofers.

In fact, Mix 2 at Signature Post, which is set up for Home Entertainment certification, was much longer than it needed to be so the rear speakers were moved to the correct position for Dolby specs. The area that was left behind the rear speakers, that would not be a critical listening position, could support a big back field during playbacks.

There is a one-time fee for being Dolby Atmos certified and then a yearly inspection and renewal fee.

Dolby Atmos brings us new ways to increase our enjoyment and enhance what is on the screen. As Ben Benedetti summarizes, “We’re here to support storytelling.”

“...There are unique challenges with every existing room to affect the changes necessary to meet this spec. In our case, we’ve been lucky, and the adjustments needed have been fairly minimal. Westwind was founded by television content creators to expand their creative storytelling tools with sound, so we have always been exclusively focused on the home entertainment experience. The size and scope of our rooms were designed accordingly so, for us, the conversion has not been a structural undertaking.”
LOOKING BACK ON MIXING *VEEP*

by Bill MacPherson CAS
A friend recently asked me if there was one word that could describe my experience as production mixer for the HBO comedy Veep.

I thought about this for a minute.

_Greatest._

The greatest comedy. The greatest cast. The greatest crew.

Then, another word immediately came to mind.

_Difficult._

The most difficult days. The most difficult weather. The most difficult show.

In 2011, I received a phone call from a producer asking me if I wanted to relocate to Baltimore, Maryland, for three months to mix a politics-driven comedy about a vice president of the United States. The show was to star national treasure Julia Louis-Dreyfus. A no-brainer, right? I said yes.

After reading the first script, I realized, hello, this was wall-to-wall dialogue! Most scenes contained seven or more speaking characters. I proceeded to update my equipment to accommodate the audio demands of the show. I needed more wireless systems.

There was a bit of a hiccup at first, with another mixer being hired for the pilot. I’m not sure how that scenario ever came to pass—but whatever it was, I’m glad it happened. Otherwise, I would have missed the opportunity to mix _The Comeback_ for HBO. But that’s another story...

After the pilot for _Veep_ got the official greenlight, production still wanted me to mix the series. They called again and requested my services in Baltimore. And so it began: a journey that led me to work with some of the greatest talent of all time.

On a late September night in 2011, I landed in Baltimore. HBO, legendary for taking great care of their crews, had me booked into a suite at the Hilton in the Inner Harbor area of downtown Baltimore.

The day after I arrived, we had a production meeting and scout. During the scout, I met Armando Iannucci, the showrunner and creator of _Veep_. At that time, he explained his vision to me regarding sound for the series, saying, “I like to use all the dialogue recorded on camera. All the nuances, all the inflections; that’s where the magic lives.” He was aware I recorded the last four seasons of _Curb Your Enthusiasm_ and that I was familiar with wiring all talent, all the time.

One evening after wrapping the cast and camera department, Armando kept the background and the sound department on for an additional hour to record sound effects: FX that would normally occur in the EEOB (Eisenhower Executive Office Building), general office sounds, phones ringing, background murmur, etc. Because our stage had
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"WEREWOLF FEUD"
such a unique timbre (a retrofitted warehouse), Armando wanted an organic SFX match for the recorded dialogue.

In my experience, communication between showrunners and production sound mixers is often nonexistent. This was not the case for *Veep*.

I was a bit apprehensive about not having my LA crew with me in Baltimore, so I called David MacMillan CAS. David had recently mixed *Game Change* in Baltimore. I knew that any leads from him would be solid, and I was right. I was lucky to be referred to an incredibly talented crew. On boom was Lorenzo Millan who, after *Veep*, went on to become an Emmy award-winning production sound mixer for a popular drama series. Steve Lafayette was sound utility, one of the best I’ve ever worked with in my entire 35-plus-year career. He kept everything meticulously organized.

“I LIKE TO USE ALL THE DIALOGUE RECORDED ON CAMERA. ALL THE NUANCES, ALL THE INFLECTIONS; THAT’S WHERE THE MAGIC LIVES.”

—ARMANDO IANNUCCI

The first few episodes of Season 1 served as a boot camp for the rest of the series. Workdays under 12 hours were rare to nonexistent. Our page counts varied between 12 to 20 pages a day, often higher. (I know it sounds impossible, but it actually happened.) The DP for Season 1 lit with a variety of lights, including two China balls extended out onto the set with booms. During the takes, the lights were in perpetual motion, creating a myriad of problems. My boom operator, constantly fighting for position, wound up being sidelined for ambience most of the time.

When Lorenzo, our boom operator, moved on, I needed to find a replacement. After many referrals and calling around, I found Steve Saada. Steve was a welcome addition to the sound department. Reid Scott, the actor playing the part of Dan Egan, would time Steve on how fast he could wire him. At one point, Steve got it down to 30 seconds. Travis Groves, a sweetheart with an imposing presence, was utility. Travis had an innate talent for quieting the set. Steve and Travis were not only good at what they did: they became my good friends as well.

Then there was the stage itself.

About 30 minutes southwest of Baltimore via Interstate 95 with a jog northeast onto the 175 lies the town of Columbia, MD. It was

Steve Saada at work on *Veep*: the largest page count in HBO history
the location for a major retail distribution center and the Veep production soundstage, both in the same building. As wrong as that seems, the Veep soundstage was separated from a massive industrial distribution center by one wall. The sound of forklifts backing up was a permanent addition to our audio track. Whenever the wind kicked up, the metal doors on the roof vents would blow open and then close with a thunderous slam. We were told the doors could not be bolted down for some unexplained reason. HBO and UPM Mads Hansen were both extremely helpful for insulating our half of the building, yet it never really worked properly as a soundstage. Re-recording was mixed in London by Richard Davey. Richard is an absolute maestro when it comes to pulling clean dialogue from large poly WAV files. We were extremely lucky to have him.

When I returned for Seasons 2 through 4, I was completely taken with the show. We had long days and lots of laughs. Despite the hours (or, more likely, because of them), there was a sense of camaraderie among the cast and crew unlike anything I’d ever experienced before.

On the cart, I used two Sound Devices 688 recorders for up to 24 inputs. Veep had multiple scenes involving teleconferencing setups. The assignable outputs of the 688 served very well for those situations, with one output feeding a hotspot or earwigs for one room and another output feeding vice versa for the next room, usually via Lectro SMQV or UM400a to a 411a receiver.

I have a Sound Devices 688/SR6 bag rig with three Lectrosonics SRc dual receivers. The bag rig is essential as it’s used all the time. 411 receivers can be added to the bag as needed. All venue frequencies on the cart are coordinated via Wireless Designer. The bag receivers are matched to the cart receivers and remain on standby until needed. Since things happened very quickly on Veep, having a lightweight system with up to 12 channels ready to go at any given time was a great option.

Season 4 was the last season shot in Baltimore. Seasons 5, 6, and 7 would be shot at Paramount with a new production team consisting of Morgan Sackett and David Hyman. Also, we got a new showrunner, David Mandel. I met David while mixing Curb Your Enthusiasm. At Curb, David served as executive producer, writer, and overall creative sage. Veep was in very good hands.

The office of the cinematographer had a revolving door over the years, as Veep employed five DPs over seven seasons. (I figured I must’ve been doing something right to stay on board for so long.) The last two seasons with David Miller shifted exponentially to brilliant. Miller earned Veep’s first Emmy for Cinematography. Even though we were shooting with four cameras, David Miller’s creative lighting allowed us a greater opportunity to use two booms.

For me, the best part of the move back to LA was meeting re-recording mixer John Cook CAS. All production mixers should sit in with the re-recording mixer at some point in time. Production is a world of moving sound fields and, at best, semi-controlled environments. Post is highly controlled, with every tool available to improve and polish the final product. Spending time with John Cook CAS and Bill Freesh CAS at Universal’s Mix 1, I was able to follow the path of my production tracks to their final outcome, as well as learn what could be done on my end to streamline the process.

Sackett and Hyman pulled the show together with meticulous care.
The days were not as long. We were shooting on great stages at Paramount, our tracks were fat, and we had a direct line to post.

The one driving force throughout all of this was Julia. Always present for every shot, always in good spirits, she kept a smile on everyone’s face.

I cannot think of a more perfect conclusion to, what was for me, America’s greatest comedy. David Mandel and his team of omniscient writers nailed the zeitgeist with precision and grace. Principal photography for Season 7 culminated in an emotional hailstorm for the cast and crew, with one production mixer hiding his tears behind a tall sound cart. For me, Veep will always top the list of my fondest memories.

I’ve always worked with talented professionals like Anna Delanzo, Rocky Quiroz, Alexandra Gallo, and Brandon Loulias. Currently, I’m working with Doug Shamburger, Michael Nicastro, and Johnny Kubelka. I couldn’t be happier.

Rig Rundown
With seven seasons, I’ve gone through lots of gear. The current system is as follows:

**Microphones**
- Schoeps CMIT 5U
- Schoeps miniCMIT
- Schoeps CMC6, 5 Preamp
  - MK41 MK8
- Neumann KMR 81, KMR 82
- Sennheiser MK 416
- Mitra 3D Mic Pro for FX
- Lavs (lots of them)
- DPA 4060
- Sanken COS-11
- Sennheiser MKE 1

**Lectrosonics**
- SM: 12 units
- 411 Digital Hybrid TX + RX: nine units
- SSM: two units
- SMQV: one unit

**Recorders**
- Three Sound Devices 688 recorders: one in bag with SL6 and two on cart.
- Two Sound Devices CL12: one on cart, other to use with bag system when needed.
- Sound Devices 664 recorder on cart to serve as backup recorder.
- Sound Devices 702T for stereo effects.
- Motorized sound cart.
Scenes from: AES Dublin and NAB

by David Bondelevitch CAS MPSE

The Genelec room

Thomas Lund

The PreSonus booth

The Nugen booth

David Griesinger
AES DUBLIN The Audio Engineering Society International Pro Audio Convention was held in Dublin this past March at the beautiful Dublin Convention Center. There were a number of great presentations, along with numerous vendors. The International Conference tends to be a bit smaller than those held in the US, so it is much easier to get a chance to talk to people.

CIRCLES OF CONFUSION A panel of experts including Jamie Angus-Whiteoak, David Griesinger, Thomas Lund, Mandy Parnell, and Bob Katz had a lively discussion about monitoring situations. Each had a unique perspective and framed their presentations in different ways.

EMOTIVE SOUND DESIGN IN THEORY & PRACTICE A pair of back-to-back presentations discussed emotion in sound design. Thomas Görne gave the first lecture about psychoacoustics and styles of sound design. He was followed by Anna Bertmark, who showed examples of her work on several films and discussed her approaches to design. This was an excellent pairing in programming; I hope the AES does more of this!

EXHIBITORS Of the exhibitors, the Genelec room had a constant flurry of activity, showing immersive demos all three days on their new S360 high-SPL two-way studio monitors and ‘The Ones’ series of compact coaxial three-way models. These were configured and calibrated using Genelec’s GLM software, which allows an entire monitoring system to be optimized for any acoustic space.

OTHER VENDORS INCLUDED Focusrite Pro, Nugen, PreSonus, PSI, Rupert Neve, Sonosax, and Sound Particles.

JW/RAMPS SOUND PARTY @NAB: The JW Sound party for 2019 moved across the street to a new location at Gordon Biersch. As usual, a good time was had by all, especially Dermot Penny, who won two tickets to the 2020 CAS Awards!
Scenes from NAB 2019

Avid’s audio booth

Focusrite displaying a RedNet system

The creative team from Wolverine discussing their podcast

Michael Carnes of iZotope

Audio-Technica’s Alteros UWB Wireless showing off some Best of Show awards

Lectrosonics showing off their products

Cheryl Ottenritter

Zaxcom displaying their products

Wolverine

The Long Night

The creative team from Wolverine discussing their podcast
A number of years ago, the good folks from Smyth-Research (Smyth-Research.com) came to Middle Tennessee State University, where I am a professor. They brought their A8 Realiser in for us to demo. The purpose of this hardware box was to allow the perception of listening over loudspeakers (up to eight channels) while actually listening via headphones. Peter Damski CAS wrote an article in the Fall 2011 CAS Quarterly about the unit and included a quote from me describing the representation as “mind numbingly accurate.”

What did Smyth-Research do so accurately? First off, they took a personalized HRTF (Head-Related Transfer Function) of the individual in the room they were listening in. They did this by placing small microphones in the listener’s ear while seated in the listening position. Each speaker emitted test signals that were picked up by the microphones in the listener’s ears and took into account the HRTF of the listener. (Our setup at the time was 5.1, though the new A16 Realiser can handle 16 tracks for immersive representation.) The unit took into account the room acoustics, speaker placement, and listener’s HRTF relative to that space with precision strong enough to make you question whether the headphones were on or off your head.

While the Realiser is extremely impressive as a hardware solution, portability is often the reason we’re mixing on headphones in the first place. As such, software solutions are very desirable and even more possible given the processing power of personal computers these days. Some companies have tried to emulate loudspeaker listening through headphones with the use of plugins. Two that come to mind are CanOpener by Goodhertz (goodhertz.co) and Nx Virtual Mix Room by Waves (waves.com).

CanOpener (get it?), which is limited to stereo, uses a crossfeed algorithm that allows some of the left-channel signal to feed the right side of the headphone and vice versa. It also allows for adjustment of “speaker” angles, eq, and room sound. The user can alter these based on taste to try and match a listening environment they’re familiar with.

Nx is more sophisticated, allowing for up to a 7.1 emulation. Waves also allows you to input your head circumference and inter-aural arc (distance from ear to ear around the back of your head) to gain a closer representation of how the user’s head may affect perception. Adjustments to eq, angles, and room can also be made. Like the Realiser, Nx even offers head-tracking to add a level of realism to the listening experience as you move your head.

So, what is Genelec trying to do with Aural ID? What they’re not trying to do is give you what these plugins and hardware do. What they are doing is creating the fingerprint equivalent of how your head and auditory system affect the way you hear. Given that the company has spent 40-plus years developing and improving the accuracy of their loudspeaker monitors, accurate headphone monitoring was a natural step.
Here are a couple of questions I was looking to answer when researching Aural ID. What do you need to do on your end? What do they do with what you give them? What do you get? And what do you do with it? Here’s a look into my experience.

CAPTURING
In order to create an accurate HRTF, one would, traditionally, have to put special microphones in their ear canals (not dissimilar to how the Realiser captures this) and record test signals in an anechoic chamber to remove the effects a room has on direct sound. The subject would have to be extremely still during the process so the orientation is consistent. Given the unlikelihood of people actually doing this, Genelec created a very clever approach for capturing this information using readily available technology.

The technology needed is a video camera and a person to operate the camera. For me, it was my iPhone and my teenage son Michael. If you want to illicit a strange reaction, tell your kid, “Hey (insert said kid’s name), I need you to video my head and pay particular attention to my ears.” While not the cinematography debut he was looking for, Michael recorded my head by walking slowly around me as I sat on a stool in our garage (see photos on the next page). Genelec provides a good video example of how to do this with enough detail for the video to be effective. It’s very easy to record this too quickly. Slow and steady are your friends, though you may have to introduce the concept to your kid. You then put a ruler up to your ear and take a picture to show its length and to provide a measurement reference for the folks at Genelec (again, insert odd reaction from kid). The video and the ruler photos of your ear are then uploaded to Genelec’s site.

PROCESSING
Back in Finland, Genelec’s team uses software to create a 3D model of the head recorded in the video and seen in the photos. Once this is created, they use an acoustical simulation to calculate the acoustical field. The process measures the equivalent of 836 different orientations. Think about that for a second: 836. This allows for hundreds of aural origination points (e.g., monitors) to be represented in the HRTF.

DELIVERY
Once Genelec has completed their processing, you are sent .SOFA files at three different sampling frequencies: 44.1 kHz, 48 kHz, and 96 kHz. The file to be used is based on your session’s sampling rate. If you’re unfamiliar with the .SOFA format, it stands for “Spatially Oriented Format for Acoustics” and is a format standardized by the AES to store acoustical data such as HRTF and binaural or directional room impulse responses. You can read more about the file at www.SOFAconventions.org. With Aural ID, this file contains your HRTF.

INCORPORATION
Once I received the file, I was curious to hear what it would do. To use the file, you need a plugin or program that can read a .SOFA file. Pro Tools does
depth added to the source material relative to just listening on headphones. Normally, the spatial content on headphones can be very extreme at times but engage the Aural ID and the imaging narrows as if to incorporate Interaural Time Differences. For kicks, I adjusted the azimuth to 45 degrees and the imaging became closer to what the headphones naturally reproduced. Phasing became noticeable with some speech on occasion. For one show I sampled, the narration's vertical position seemed to elevate slightly higher with the Aural ID engaged compared to when bypassed. When I tested some of my music reference songs, I could really hear how hard panned instruments and vocals were compared to when I bypassed the Aural ID.

I took a number of breaks over the days I experimented with Aural ID. If I came back to a session and listened first with Aural ID engaged and then bypassed, I preferred the Aural ID characteristics. If I first listened with it bypassed, I would initially prefer it that way. I’m looking forward to trying it out with surround and immersive sources.

**CONCLUSION**

My initial thought when I decided to look into Aural ID was that I’d find something that could more accurately replicate mixing on monitors. However, by itself, that is not the point of the Aural ID as it does not include room characteristics. If you were to also incorporate an impulse response of a specific

**REACTION**

It was interesting to engage and bypass the Aural ID since I didn’t have a room IR file that I was trying to replicate listening in. There is definitely some
space (such as your dub stage) and process that IR with your .SOFA file, then you could replicate how you would hear things in that specific space. While this could be great, it is not the sole purpose of Aural ID, as you will learn if you read the following interview with Genelec’s Director of R&D, Dr. Aki Mäkivirta.

Using SPARTA Binauraliser to read the .SOFA file.

AFTER EXPLORING MY AURAL ID, I HAD A COUPLE FOLLOW-UP QUESTIONS. ONCE WE COORDINATED OUR SCHEDULES (GENELEC’S HQ IN FINLAND IS SEVEN HOURS AHEAD OF MY CENTRAL STANDARD TIME IN NASHVILLE), I SPENT SOME SKYPE TIME WITH DR. AKI MÄKIVIRTA, GENELEC’S DIRECTOR OF R&D.

WHO DO YOU SEE AS YOUR MAIN AUDIENCE FOR AURAL ID?

There is an application area that is particularly a good fit for this technology and that is game engineering. Games contain synthesized room effects and immersive audio content. Using a personal HRTF contained in Aural ID for these applications is a really straightforward way of increasing the precision and productivity of sound engineering work.

The second application would be engineering of binaural audio content. The personal HRTF in the Aural ID offers, again, a more reliable presentation and can increase productivity. In the case of binaural audio, the sound is presented using headphones. Today, audio is increasingly recorded using higher order Ambisonic microphone technologies. Aural ID suits perfectly to monitoring such recordings binaurally and offers improved reliability.

HOW ABOUT USING AURAL ID FOR TRADITIONAL MIXING?

Your thinking is in the direction of directly replacing loudspeaker-based conventional monitoring with headphone-based monitoring. A lot of work is going on at the moment around the world to develop different aspects of such technology. A significant part of this work has been to reduce or remove the unit-to-unit variations of [different] headphones’ sound characters, as this is usually the first problem that pops up. There is also other software that is essentially claiming to be able to create a number of virtual loudspeaker sources around the listener. Some software also offers a head tracker to update the HRTF in real time to create an illusion of the sound reproduction remaining stationary in the room when the head turns. Once these allow the use of personal HRTF data, the quality and reliability of these methods can increase.

HOW CAN USERS CREATE AN ACCURATE SPACE TO PUT THEIR AURAL ID “IN”?

At the moment, there are several companies that offer technology to record 3D impulse responses in rooms. Such technology can be used to capture the room influence in a way that can be used in rendering the room over headphones. Each early reflection has a certain level, timing relative to direct audio, and orientation relative to the listener. The information in Aural ID enables the presentation of this information correctly for the headphone listener. Naturally, a set of early reflections is unique to each audio source (loudspeaker) in the room. The number of early reflections to handle is significant, but technology suitable for handling this has been developed, for example, in the area of Ambisonic reverberation software.

HOW WOULD YOU SEQUENCE PLUGINS TO ACCURATELY REPRODUCE LISTENING IN A ROOM IF YOU HAD AN IR AND AN AURAL ID?

If we think of the correct order of arranging the signal processing steps, first we need the simulations of the real sources (loudspeakers) we want to listen, then we need the room-related early reflections generated for all these sources, and finally, we render all this audio information for headphones. The rendering uses Aural ID-contained information about the HRTF for all the directions of arrivals relative to the listener. Aural ID is a complete presentation of the HRTF for each ear individually, and it is calculated in 836 different orientations for each ear, covering the whole sphere around the listener fairly densely.
A BLACK MIRROR EVENT

BANDERSNATCH
Black Mirror: Bandersnatch
An Interactive Narrative on Your TV?!

by Karol Urban CAS MPSE

Netflix began experimenting with interactive narratives in children’s programming with the titles Puss in Book: Trapped in an Epic Tale and Buddy Thunderstruck: The Maybe Pile, which allowed children to make narrative decisions from a regular TV remote.

But in 2018, they expanded Black Mirror, their film anthology about strange, dark, and futuristic imaginings, and their interactive programming catalogue with the release of Bandersnatch. The approximately hour-and-a-half journey centers around a young programmer in the ’80s who attempts to adapt a sci-fi fantasy novel into a video game and falls into a rabbit hole of realities. At crossroads in the narrative, the viewer guides the storyline through on-screen prompts providing available options. The additional choices to the viewer required roughly five hours of edited timeline.

Written by series creator Charlie Brooker and directed by David Slade, this was Netflix’s first interactive title aimed at the adult demographic. The narrative-driven story had to be thought provoking and complicated and yet able to follow the viewers’ path seamlessly. The logistics of this were made possible by the use of a tool called Branch Manager. This bespoke tool created by Netflix engineers not only keeps track of how the story is progressing, but also records the viewers’ choices. The result is an organic experience where one incarnation of the story can develop a main character with strikingly different priorities and motivations compared to the next. Netflix plans to use the Branch Manager tool and associated workflow for future projects.
To learn a little about how that affected the world of audio mixers, we spoke with Tim Barker, production mixer, and Doug Cooper, re-recording mixer.

**AS A RE-RECORDING MIXER MYSELF,** when I typically get booked, I usually ask for a screener before I go into the mix so that I can kind of follow the story and foreshadow what it needs to foreshadow or maybe do the opposite and kind of withhold information that maybe needs to be a twist or surprise for the audience, et cetera. That’s not really possible for this production. Did you guys have a grasp of the multiple plot lines? How was the narrative communicated to you?

**TIM:** I went to interview with producers Mark Kinsella and Russell McLean, and the first thing they showed me was [a] chart. And it was like a sort of kind of big family tree-type affair with lots of branches coming off it and loops and, yeah, more like a sort of computer program rather than a script or an outline. So I looked at that and thought, “Oh my God, that is quite something.” Did you get to see that, Doug?

**DOUG:** I didn’t, no. I came on board later, so I was a bit more fortunate in that I was given access to Branch Manager, the software that the whole thing’s made in.

**TIM:** But did you get to effectively play through before starting work on it?

**DOUG:** While reading the script in its form.

**OH, I SEE. And when you read the script in this form, this Branch Manager software, is it a linear script that you were reading where “if this and that,” or were you able to literally read something and kind of click through or see the different options?

**DOUG:** In the version of Branch Manager I was given, each segment was in there, pretty much. You could jump around into different segments; you didn’t have to follow any of the narratives.

**EXCELLENT. That’s amazing. Have you guys ever done anything like this before? Have you worked on VR or any type of nonlinear narrative-driven productions before?**

**DOUG:** My only experience making nonlinear was I’d mixed three video games. So, I had some awareness. In fact, I think that was one of the things that was in my favor when the job was out there and people were trying to work out who to mix it. But actually, it’s a whole different ballgame, frankly.

**AND SO, WHEN YOU SAY YOU MIXED VIDEO GAMES, were you working with audio implementation software or were you working with the linear videos that were within the video game?**

**DOUG:** No, I was working on the audio implementation software, basically teaching the game how to mix itself.

**THAT’S AN INTERESTING BACKGROUND because one of my other questions is, were there any [audio] specifications that you had to hit as you went from module to module where you had to reach a logistic point sonically? [Maybe] a particular background with a particular decibel level or panning pattern between the end and beginning of different segments so that it would feel consistent as you played through? Was there any guideline created for that? Any effort toward making a specification even just for yourself?

**DOUG:** No. I mean, that was one of the things that I felt really strongly about from the very beginning, that it should feel seamless. So, we had various conversations with engineers at Netflix and I think everyone was quite skeptical that it was going to be achievable. But I hope it is and I hope people that have seen it feel that it does flow smoothly.

**IT CERTAINLY DOES. What did you do to help it become seamless? Was it an automated crossfade-type of thing in the programming?**

**DOUG:** No. So, effectively, it was like having many reel joins. There’s no facility to crossfade in the stream. Basically, the sound will just fade out and fade in again between noncontiguous segments. We created transition blocks to make each join work. We knew which segments would go to which other segments and where those segments could have come from. We actually created transitions for all those possibilities and then, after that, we just had to make sure that each of the ambiances effectively had the same automation in all the different places where you’re in the same space.

**I WOULD THINK THAT WOULD BE A bit like mixing in reels when you’re dealing with a scene that cuts from one environment to another but will assemble for a long play or full version. And, in this case, that sounds like a lot of work. How were your approvals? How did your clients come in
and approve these little segments? There must have been an interesting format to that day.

DOUG: Yeah. You know, obviously, we were going to be making up the workflow as we went along, because nobody’s ever really done this before. So, during color grading, I think, they created what they called an ‘A/B reel,’ which was about an hour-and-a-half long and went through most of the main plot lines and all of the environments. We inherited that workflow from them. It wasn’t necessarily continuous, I mean, quite a lot of it did flow as a story. But sometimes you went through different variations of the same scene. You know, you went from one segment to something that would never actually follow on from that segment. It wasn’t quite like a normal narrative.

OKAY, SO IT PRESENTED kind of like continuous segments.

DOUG: That was the only way that we could get any kind of flow so that David, Charlie, Annabel, and Russell could make any decisions about the whole thing.

AND THE FILM is about an hour-and-a-half?

DOUG: That was a version which covered most of the different places that we went, but the whole thing, I think, was about 312 minutes and that includes sort of split-screen choice segments. If you get to a certain point, you cut to a shot of an old TV where you can choose to go back to different points in the narrative or go to the credits. There are quite a few of those.

THERE’S A LOT OF SCENES that begin one way where they seem like they’re almost exactly the same and then they kind of change a little at the end—like the choice is just slightly different at the end?

DOUG: Yeah, we were very careful to make sure that all the environments were recognizable. So while they might not be exactly the same, the automation level was right, the panning was right, the reverbs were right, they were all the same. But then we’d introduce variations around that.

DO YOU THINK THAT ACTUALLY having gaming experience helped you with the understanding of this being a nonlinear narrative?

DOUG: I’ve known Joakim [Sundström], the sound supervisor, for a long time and we have a really good relationship. I think one of the things that helped him get me on the show was the fact that I had an appreciation of different types of workflows. I guess I’m a fairly technical sort of mixer in the sense of working out technical issues and solving the whole transition thing, [which] was quite a big deal.

DOUG, HOW LARGE WAS YOUR TEAM? Were you the single re-recording mixer on this entire project?

DOUG: Basically, I did all the premixing on the dialogues and about a third of the premixing on the sound effects, that was covered by Chris Burdon and Markus Moll. I final-mixed all the segments apart from the recaps, which Markus final-mixed on another stage. Joakim Sundström was the sound supervisor. The dialogue editors were Davide Favargiotti and Michael Maroussas. Christer Melen was the sound designer. I’m not sure whether they used any other sound effects editors to do bits and pieces, but I think it was mainly Christer. So, it was a relatively small team for five-and-a-quarter hours’ worth of material.

We were lucky, to be honest. One of the things Davide did during the dialogue premix was feed me only original material. So, there would be a process of mixing certain segments and then he would take that away, conform that into the other segments which had some of that material in, and then generally whatever was new. I had to then mix based on his conform. Then he’d take all that away and conform that again into other segments. He was brilliant at
Will Poulter as Bandersnatch working out what needed to be done and what didn’t need to be done, and that was an absolute lifesaver.

I think it was pretty hard to do, to be honest, but to his credit, he just fed me what I needed to know and what I needed to mix, and then dealt with the rest.

**THAT’S A HUGE FEAT.** I use backgrounds, even if not significantly identifiable on their own, to make a cut feel like it was a time cut versus a repeat of the same time or vice versa. An up-cut car or too repetitive office phone could change a scene significantly. So that type of detail, I would imagine, would be absolutely imperative for this type of work, because you really have to use the same part of the backgrounds in certain spaces and then make sure that you don’t use that same part in other areas where you’re moving through time.

**DOUG:** That was the fundamental challenge of working on an interactive show; it is exactly what you’ve just described. Just making sure that the things that should sound the same, if you’re in the same place or you’re at the same time, as the action repeats, that the audio cues tell you that you’re in the same place. They’re not telling you that now it’s nighttime or now you’re in a different environment or whatever. It is a fundamental issue of making sure that, for example, every time that the computer crashes because our lead character is having a programming meltdown, that that sounds the same. All those kinds of details.

And part of the thing that I would take from all of this is, okay, now we know the technicalities of what we have to deal with and how we’re going to have to deal with it. That sort of frees you up then to focus back on the creativity behind it and how to tell the story as far as you can using sound and what the sound can do to help the narrative.

**IN PRODUCTION, WAS THERE ANY CONFUSION WITH DIRECTION?** For instance, were the actors trying to either remain ambiguous as to what they were thinking of doing next so that the choice was more open for the audience or did everybody have clear motivations? It seems like that would be highly confusing as one set, you know what I mean? Because you don’t know what you’re alluding to in the scene.

**TIM:** Yeah. Well, you would think so. I mean, the actors we were dealing with were so on the ball they weren’t fazed by that at all. Obviously, it’s hard work switching and changing and seeing subtle differences on what appears to be the same scene and slightly different actions. It was frustrating and a little bit confusing at times when something is almost identical—however, with subtle changes. But they were top-class actors and there wasn’t really much of a problem.

The rest of the crew had more of a struggle because [for example], the art department had to keep on top of it. Our sound team had to sort of be aware of all the different subtle dialogue changes [as well].

We really had to be top of the script. Normally you would get, let’s say, half a dozen pages for the typical Netflix drama. But with Bandersnatch, you’d get a big book of say, like, 30 pages. It was more or less the same scenes repeated but with subtle changes. It was a case of keeping on top of all that.

**HOW DID YOU IDENTIFY your reels and your audio files besides meticulously?**

**TIM:** Well, yeah, it’s a matter of file management. So, what I would do is try and give as much information in the metadata, in the notes to sort of help, sort of ease that in the post-production stage. So yeah, I kept the scene numbering within the notes, which hopefully was used and could easily be sorted with a file manager. Allowing the dialogue editor to sift through and find which shot was supposed to match each choice variation.

**HOW BIG WAS YOUR TEAM ON THE SET? I believe you folks call them first**
assistants and second assistants, right? Which we refer to as a boom op and a utility. This is correct? That’s the correct American translation?

TIM: That’s right. And, actually, it was much like any other drama for all intents and purposes. We didn’t need any extra team for that reason. However, there is a scene where our lead character, Stefan, has a fight with his counselor and tries to jump out of a window but then realizes he’s on a film set. The camera pulls back and we realize yes, we’re actually on a film set. So, we had an extra crew member in that take as the boom operator who was revealed.

AS YOU WATCHED IT ALL AUTHORED TOGETHER, is there anything that you would’ve done differently or anything you’d take as a lesson to maybe do next time when you’re challenged with something of this nature?

TIM: The job is more or less the same—you know, ensuring those clean scene choice transitions and no overlapping dialogue at those key moments. But that’s the case of any drama, really. On this drama, we had a bit more of a say if [for example], there was a problem like a plane going over, they would definitely go for a repeat take or wait for the plane before they went for it. So, yeah, apart from that, it’s much the same as any other drama.

I GUESS THAT’S TRUE BECAUSE IN PRODUCTION THERE IS NOISE FLOOR that is common. But if there’s a car by or a plane by or something intermittent or particularly sporadic to the scene, even if faintly in the background, that is a tell that it’s a different version of the scene. Having it in production would make that instance generally narratively unalterable. Keeping “continuity” must have been insane, right?

TIM: Yeah. Yes, of course. And David [Slade] would say, you know, “If there’s anything wrong, here, just fix it, have as much time as you like to do a fix.”

WELL, THAT’S A GOOD THING. I imagine a lot of our readers will be pleased to hear that maybe this genre will foster a little bit more patience for sound.

TIM: The whole thing took much longer than anyone anticipated, I think, across the board. I think they recognized the importance of those transition moments.

I’M WONDERING WHAT YOU GENTLEMEN THINK ABOUT THIS BEING a kind of generational stopgap between linear entertainment and VR, which is viewer-driven narrative.

TIM: Yeah, it’s great that Netflix is championing this. I’m a little surprised they haven’t been put off by it because it turned into something that [is] bigger than everyone anticipated. But yeah, it’d be great to see this as something, you know, the way TV is changing and the way we watch TV is changing. Yeah, I’m looking forward to seeing how it all works out in the future.

DOUG: It’s a shareable thing as well, whereas VR, I guess, can be a bit isolating. You can sit with somebody at home and go, “What should we do here?”

TIM: The gaming industry in this country, at least, is larger than the film industry. So maybe the two will merge at some point and we’ll be able to integrate some of these narratives and shows.
We all know that technology and techniques are in constant flux. In the entertainment industry, it’s simply a reality. It’s a reality for any field profoundly influenced by computation.

On top of that, those of us on the audio side of entertainment are heavily compartmentalized. Not for secrecy’s sake, but in the name of efficiency. Secrecy, however, seems to be a byproduct. Sometimes it can seem as if one hand doesn’t know what the other is doing.

There are production mixers who believe their mix from the set is what makes it to air and there are re-recording mixers who don’t have a clear idea of their dialogue’s origins. To that end, it seems instructive to chat with some people in each compartment and spell out the “chain of custody” for our precious dialogue. Where does it start, to whom does it get passed to, and for what reason.

LET’S START AT THE BEGINNING:
THE SET. BLAS KISIC is a longtime production sound mixer who offered his insight and some basics for those unfamiliar with production sound mixing.

WHAT DO PEOPLE THINK YOU DO?
I don’t know! Some people hear my title and think I produce music. Ha! Even people in the business are a bit confused.

SUFFICE IT TO SAY, YOU RECORD THE ACTOR’S DIALOGUE ON SET AND SOUNDSTAGE.
Yes, but we also mix live. In general, we record my mix of the mics for picture editorial and picture dailies, as well as separate boom mics (or booms), isolation mics, and plant mics.

WHAT IS A PLANT MIC?
It’s a mic hidden on set to capture dialogue in a particular situation like an actor crouching to a POV prop, like a body.

FOR PERSPECTIVE?
Exactly!

HOW IS DIALOGUE CAPTURED IN GENERAL?
Well, there is a team. In my case, a mixer (me), a boom operator, and a utility person who can double as an additional boom op when necessary. We record the mics used pre-fader and I create a live mix. I also manage all the files (and documentation). It all really starts with rehearsals.

HOW SO, WITH THE ACTORS?
Yes, ideally, the actors are standing around on set reading/practicing their lines, and we learn about each scene that way. Then the actors go to last looks (wardrobe and makeup) and that’s where we mic them up with the isolation or lavaliere microphones.

Second is the blocking rehearsal where the actors execute the scene with its necessary movements. Here’s where we get our real-world mic levels and learn our movements to best capture the dialogue and stay off camera.

Lastly, after we have choreographed our movements, the lighting is set and we shoot. Usually, we shoot wide-establishing shots, then progressively move closer until we arrive at close-ups. During this progression of shots, the actors, the camera ops, us, and everyone else get better as we repeat the scene.

WOW, I DIDN’T KNOW YOU’D GET SO MANY SHOTS AT IT.
Ha! This is just an idealized version of how things should go. As you know in production, one has to be flexible. There are oftentimes where schedules, weather, or other factors “play” with that ideal.

IS THERE A BIG DIFFERENCE BETWEEN WORKING ON SET AND SOUNDSTAGE?
Things are a bit more relaxed for us on
a soundstage; for everyone really. But for us, we don’t have to be as vigilant listening for a plane landing or a siren approaching that could spoil a take.

**WHO DO YOU DELIVER TO?**
The physical media goes to the digital imaging tech (DIT) or a loader. Depending on whether it is a digital or film shoot. Since TV is shot digitally, by and large, it’s the DIT. They take our SD/CF card, ingest it into picture editorial’s workflow, and bring it back. At this point, it’s their dialogue to match to dailies and use in their picture-editing platform.

**SEEMS TO ME THAT THERE’S A LOT OF ROOM FOR ERROR WITH ALL THESE FILES FLOATING AROUND ACROSS DEPARTMENTS WITH DIFFERENT SYSTEMS AT DIFFERENT STAGES OF THE PRODUCTION. IS IT ALL KEPT TOGETHER BY A TIME-OF-DAY TIMECODE TRACK?**
It’s interesting that you bring that up because on set it’s the Audio Department that’s in charge of time! We check with the head of post-production before each shoot and decide what type of timecode we are going to use, set that up in our clackers and recording units. We give those clackers you’ve seen on screen to the 2nd assistant camera op, and they sync their cameras to us. So, every file should have the same timecode and a certain pre-arranged naming convention so everyone can stay on the same page.

**Next stop along the chain, I was lucky enough to speak with JON CORONA, an audio editorial assistant at a large post-production facility.**

**HOW DO THESE SHOWS COME TO YOU?**
Every show is different. The deliveries vary depending on the timeline of the picture editor’s AAF and the state of the production mixer’s audio dailies or sound rolls. In essence, there is no standard.

**HOW DO YOU ORGANIZE ALL OF THESE MOVING PARTS?**
We start by renaming the sound files in the sound rolls.

**BY HAND!?**
No. Well, sometimes, if it comes to that, but usually we use a program that batch renames the files with scene, take, and timecode info. Many times, these files will show up and have a name that is only a numeric sequence. It’s not human-friendly, and we are trying to prep for our dialogue editors.

**MAKES SENSE. THEN WHAT?**
We use a feature that’s been in Pro Tools for some time called “Field Recorder Guide Track.” We use it to point Pro Tools to the sound rolls for an episode and, under some pre-selected criteria, it indexes them. It helps us create a timeline with all the sound roll files matched to the correct shot from the picture delivery. From time to time, there is a naming or timecode error, and we’ll have to place a file by hand.

When we think we have everything in the session, we use yet another program to phase lock our new sound roll-created timeline against the AAF timeline from the picture department. This assures that all the files are in sync with greater accuracy than a timecode number.

**AND TO WHOM DO YOU DELIVER?**
It depends on how busy we are. Usually, we post the resulting PT session with the picture, AAF, and assembly to that show’s dialogue editor on our server. But if a show has a quick turnaround, we may split the PT session into equal parts and post it to multiple dialogue editors.
Next, I spoke with one of those dialogue editors, JASON KRANE. Again, I wanted to start with the basics.

WHAT DOES A DIALOGUE EDITOR DO?
We take the assembled sound rolls built from the production mixer’s recordings and select the best takes or angles that we think will help the re-recording mixer navigate each scene.

IT SEEMS LIKE YOUR ASSISTANTS DO A GREAT DEAL OF ORGANIZING TO PRESENT YOU WITH ALL OF THE MATERIAL FROM SET. DOES THAT MEAN THAT ALL OF THE SHOWS ARE THE SAME?
No, not at all. Every show is different, every episode actually. The difference is due to the different picture editorial teams. They all have a different way of functioning, and that works its way through to us in the assembly process. The delivery for a particular scene could be two tracks’ wide or 12, depending on the team and the scene. And, obviously, we have to sift through all of it to make sure we are making the best choices.

WHO DO YOU DELIVER TO AND WHAT DOES THAT DELIVERY CONSIST OF?
We deliver to the re-recording mix stage technician who works directly with the mixers. Each mixer has a specific way in which they want their dialogue to show up. We talk with the mixers and the stage techs to find out what they are expecting, and we get it as close as we can. It can be very specific.

In terms of what we are sending, again, every show is different, but it will consist of the edited production’s dialogue, possibly with some noise reduction, options for different mics or performances, added lines of ADR, efforts-breathing, production fill (non-verbal background noise from set), and PFX (production effects, a door slam from set for example), for the FX mixer. This all goes on a server where the stage tech pulls it down and gets it under faders for the mixers.

And that brings us to re-recording mixer VICKI LEMAR. I was glad to speak with her specifically because she had been an ADR mixer before becoming a re-recording mixer. Meaning, she could fill us in on ADR and group record; subsets of dialogue that are not generated on set.

WHAT DOES AN ADR MIXER DO?
An ADR mixer places the appropriate microphones for the recording on the ADR stage, records and edits the new performances, and plays them back to the actor and supervising sound editor for approvals.

WHAT IS THE WHERE, WHAT, AND WHY OF ADR?
It is primarily done on a dedicated stage at a post sound facility. However, ADR mixers are often doing remote records with actors in other locations via an ISDN phone connection or, more commonly these days, over the internet via a plugin.

Conversely, in the case of a show like Hawaii Five-O, the production had a trailer built on set to do ADR since the show shot on the islands and the post-production was being handled in Los Angeles.

In either case, the show’s supervising sound editor creates a timecode cue sheet with a reason for an ADR recording. There could be an airplane passing over set polluting a line, the director might want a different performance, a line might change or be added because the script had evolved. In each case, we would use a boom mic similar to the one used on set and an iso mic on the actor’s clothes.
IS ANIMATION DIALOGUE DONE THE SAME WAY?
Not really. It’s still done on the stage, sometimes with the actors together and sometimes individually. The mic choice tends not to be a boom mic or an iso in that case, but a large diaphragm vocal mic like the kinds used in vocal production for records.

HOW ABOUT GROUP RECORDS?
Group records are exactly what they sound like. We get a group of “loop group” actors to the stage and record them to match a particular scene. For example, if the shot is of a restaurant, the supervising sound editor and the actors will note the kind of place it is, romantic and quiet or relaxed and loud, and act the appropriate kind of chatter.

AND WHERE DOES ALL OF THIS GO?
To the show’s dialogue editor who incorporates it into his or her Pro Tools build for the dub stage.

AND THAT LEADS US TO YOUR CURRENT GIG ON THE DUB STAGE! WHAT DOES THE RE-RECORDING MIXER DO?
We take all of the edited source material, including the dialogue, and balance it against the picture. In my case, that’s all the different kinds of dialogue, production, ADR, voiceover, group, and the music. I work with a partner who mixes all of the effects.

AND YOU MIX THESE INTO STEMs, AND AN ELABORATE SET OF MIXES AND SUB MIXES?
That’s right, we create stems like dialogue, ADR, group, music, effects, Foley, backgrounds, etc., depending on what the client has asked for.

WHEN YOU AND YOUR PARTNER FINISH WITH THE SHOW, IT IS ESSENTIALLY DONE, CORRECT?
Yes, when we finish the mix and the showrunner has signed off on our work, we hand it off to our stage tech for delivery.

WHAT IS YOUR UNDERSTANDING OF WHERE YOUR DIALOGUE, NOW EMBEDDED IN THE MIX, GOES FROM THIS POINT?
There are two paths I’m aware of, but it really depends on who the client is and what kind of company they are.

If it’s a traditional broadcaster, the mix and the associated dialogue go to a “layback” where some of the show’s producers will watch the show a final time as it is recorded to, or “laidback” to, a physical master tape. In the case of a show headed for a streaming service, the files recorded during the re-recording stage are sent to a “Finishing Facility” where our mixes are married to a master video file. These batches of files are mixed and/or transcoded into a single ready-for-streaming file.

Well, there you have it: Dialogue from Set to Screen! Researching this process certainly gave me a renewed respect for the care and craftwork that goes into keeping the dialogue in its best state possible, even if the view outside of my compartment is limited.

See you on the dub stage!

THE DIALOGUE “CHAIN OF CUSTODY” GOES SOMETHING LIKE THIS:

1. The production sound mixer and team record the actors and hand the files off to the picture department via the digital imaging tech (DIT).
2. Picture editorial uses the mixes to create picture dailies for the director and to reference the audio side of the actors’ performances during editing.
3. The ingest and assembly team at the post house use a myriad of different applications to gather and organize all the audio files for the dialogue editor(s).
4. The ADR mixer records and mixes replacement lines, line changes, add lines, and passes them on to the dialogue editor(s).
5. The dialogue editor(s) make judgment calls on what the best takes are and package them for the stage tech on the dub stage, according to the mixer’s preferences.
6. The stage tech organizes the dialogue editor’s output and gets it “under faders” for the mixer to address.
7. The re-recording mixer takes all the distinct flavors of dialogue and mixes them appropriately against picture.
8. The dub stage mix tech sends the resulting stems and mixes to a master tape-based layback or a digital file finishing facility.
9. Be it for broadcast or streaming, the dialogue is now ready for air!
Brandon Proctor: Mixing Blockbusters in Dolby Atmos

Discover how re-recording mixer Brandon Proctor used Dolby Atmos to tell a story and elicit emotion in films like *A Quiet Place* and *Black Panther*

Brandon Proctor is a CAS Award-nominated re-recording mixer known for his work on *A Quiet Place* (2018), *Black Panther* (2018), and *Mud* (2012). We recently had the pleasure of chatting with Brandon about how he used Dolby Atmos to make audiences feel like part of the action in some of these blockbuster films.

**HOW MUCH DID YOU USE ATMOS WHILE MIXING BLACK PANTHER?**

We used Atmos extensively while mixing *Black Panther*. We started with it in the design process, so it actually became part of the fabric that we were working with. Music-wise, we had a lot of higher sounding instruments in the Atmos speakers, like the women’s choir, the higher strings, and the reverb returns. We really tried to focus on how to make the music sound as wide as possible, which was fun and interesting.

**DID YOU TAKE THE SAME APPROACH WITH A QUIET PLACE?**

Mixing *A Quiet Place* was kind of the inverse approach. We always had an ambience or something specific for the other speakers that are not unique to the set of one environment. So when that ship goes by, it’s actually already in the background environment. And because we’re using specific sounds that are
different from the sides, the sound field
is even lighter.

**DOES ATMOS PROVIDE MORE CREATIVE FLEXIBILITY?**
What I can do with sound in Atmos is a totally different beast than it was in 5.1 or 7.1. In *A Quiet Place*, I used the subwoofers in all the speakers. I actually upmixed the subs when the creatures above are running back-and-forth to create a rumbling feeling. This is stuff you couldn’t do before.

**DOES IT TAKE EXTRA TIME TO MIX IN ATMOS?**
To be honest, if you’re thinking about it during the design process, before you even get to the mix stage, it doesn’t take too much longer at all. If you keep it native and keep all the sounds ready to go, you have a lot more flexibility. Dolby is making it easier and easier to connect to the Atmos panners, so you can do it as early as possible.

**WHAT IS YOUR WORKFLOW FOR DOWNSTREAM MIXES?**
I just got off of another film called *Triple Frontier* where we created all of our deliverables using an Atmos render. We had so much in the ceiling speakers that would have taken a lot of work if we didn’t have the render, and it did a really good job. And having the flexibility to decide what falls forward and what falls back is helpful. Sometimes you’ll stick something in the upper speaker and you might want it to fall down to the surrounds instead of the front. It’s actually working out really well with renders.

“I LIKE USING DOLBY ATMOS AS A TOOL FROM THE GET-GO. IT BECOMES A PART OF THE CONVERSATION, AND YOU CAN USE IT TO HELP TELL THE STORY.”

–BRANDON PROCTOR, RE-RECORDING MIXER

LEARN MORE ABOUT DOLBY ATMOS:
WWW.DOLBY.COM/ATMOS-PRO/
The Cinema Audio Society is now accepting submissions for its 2019 Student Recognition Award. We are excited to add our new format for application submission. Students will be offered the option of submitting either a written application or a video application.

This award is intended to encourage students' interest in audio production and post-production sound mixing, and to recognize individuals with exceptional and demonstrated passion for the field. The selection criteria will focus on the student's responses to questions via written or video application, as well as the professor’s recommendation letter.

Five finalists will be selected and invited to attend the 2020 awards dinner as guests of the CAS where the Student Recognition Award winner will be announced. (Travel expenses are not included) The Award recipient will receive a $5,000.00 cash award. All 5 finalists will take home a gift bag filled with a variety of outstanding tools of the trade contributed by top audio manufacturers.

Eligibility for the Student Recognition Award is open to any student enrolled in a Bachelors or Masters degree program at an accredited college or university. Students may be pursuing any major but should have a demonstrated interest and some experience in "sound mixing" for audio production and/or audio post-production for film and television. (*sound editors/designers will not be considered)

Please encourage all qualified students to apply.

Sincerely,

Karol Urban, CAS President
CAS STUDENT RECOGNITION AWARD

CAS will begin accepting applications on June 3rd 2019. All applications must be completed and submitted online no later than October 21st 2019. The CAS Student Recognition Award will be announced at the 56th CAS Awards on January 25th 2020.

ELIGIBILITY

Students must be enrolled in good standing at an accredited 4-year degree-granting college or university during any school term between Jan 1, 2019 and Dec 31, 2019. Students at US or International institutions are eligible provided the school is accredited. All application materials must be submitted in English. Student applications must be accompanied by a recommendation from a professor or instructor.

SELECTION CRITERIA

The CAS Student Recognition Award is given to an individual based on the recommendation of an instructor or professor at the student’s college or university. The award is given on the basis of the student’s accomplishments, enthusiasm, and demonstrated potential in the field of sound mixing and/or sound recording for film and television. It is not an award of excellence based on a specific student project. This award is intended for those students who have aspirations in furthering their audio careers, this is not an award for those seeking a career in film- making or sound editorial.

APPLICATION REQUIREMENTS

1. Students must submit the following materials online:
   A. Unofficial transcript (please highlight and explain relevant coursework).
   B. List of projects in which you were the primary person responsible for production and/or post-production sound mixing.
   C. Either written or video application.
   D. Once you have completed and submitted your portion of the application, a link will automatically be sent to your professor (via the email provided) to write their recommendation. *We highly recommend that you follow up with your professor on receipt of this link!* (Applications without recommendations will be considered incomplete).

   • Shortly after submitting your application and required documents, you will receive an email confirmation that your materials have been received.

   5 finalists will be selected and then be asked to submit a 5-minute example of their work and a 1-2 min explanation of the submission and their role in it.

Applications and all accompanying documents must be submitted no later than October 21st 2019 at 5:00 pm PST. Incomplete or late applications will not be considered.

Please check the CAS website for student nomination list during the week of November 18th, 2019.

ADDITIONAL INFORMATION

• The CAS Student Recognition Award will be announced and presented at the 2020 CAS Awards Dinner. Five finalists will be invited to attend the Awards Dinner as the guests of CAS. Any related travel expenses are the responsibility of the student nominees.

• $5,000.00 will be awarded to the selected student.*

Please visit our webpage for the online application. CinemaAudioSociety.org

*Any related tax liability is the responsibility of the individual.
John Pritchett CAS and crew, Dave Roberts on boom and Tyler Blythe, utility and wireless maven, recently finished the next *Jumanji*. Yet another show done mostly in Atlanta, it is to be released at Christmas. The final month of filming took us to the jungles of Hawaii, the snowy mountains of Calgary, the desert of New Mexico, and the dunes of Glamis. This all came after doing a solid year in Atlanta on both *Avengers*.

Philip Perkins CAS has been mixing the PBS doc feature *For the Love of Conch*. He also day-played on Nicole Miller’s (untitled) SFMOMA artist doc project and on the indie feature *Agent Femme*.

Jim Fitzpatrick CAS has found a new home on Formosa Group Stage “F”—the former Douglas Fairbanks screening room. Just finishing up Season 16 of *Family Guy* and Season 13 of *American Dad*. I’m also working on the sound edit and mix for a four-hour documentary miniseries named *Ending Disease*, which delves into the controversial subject of stem cell research. Amazing potential, however, ethical issues abound.

Steve Weiss CAS finished mixing the pilot for *All Rise* with Stacy Washer on boom and Dennis Carlin doing utility. It’s been picked up for series on CBS and we are anxious to begin shooting on July 22.

Lori Dovi CAS worked on David Fincher’s *Mindhunter* for Netflix in Los Angeles with John Sheridan and Dirk Stout. What a great experience!

After completing *Deadwood: The Movie* and *Westworld*, Geoffrey Patterson CAS has moved onto the HBO limited series *Perry Mason*.

Frank Morrone CAS, Colette Dahanne CAS, and Joseph Geisinger CAS have wrapped mixing the final episode of *Criminal Minds*.

Brad Harper CAS just completed the feature *Bailey & Darla* and is currently working on episodes 5–8 of *The Chosen*.

Michel Keller CAS and Tim LeBlanc are currently mixing *It Chapter Two* on Warner Bros. Stage 10

Gavin Fernandes CAS has been working his ears off. One feature: *Jouliks*: two episodes of *Big Little Lies 2* for HBO (alongside Eric Ladouceur and Louis Gignac); three IMAX movies: mix of *Superpower Dogs*, premixes for IMAX *Secrets of the Universe*, and premixes/mixes for *Train Time*. Plus, 13 episodes of *Blood & Treasure* for CBS. Looking forward to my breakdown … I mean, break!

From David Macmillan CAS: Starting my second semester at USC’s School of Cinematic Arts. Now a professor after five years as an adjunct and have begun tenure track. My son David is mixing reality TV and booming on various projects. All six Macmillans are involved in “the Business” and doing well.

Craig and Brian Nimens of Sound Ideas and Rob Nokes of Sounddogs signed an agreement for the acquisition of Sounddogs by Sound Ideas. Brian said of the purchase, “I have known Rob for decades and I am thrilled that Sound Ideas will be able to move forward with the Sounddogs.com name.”

Joshua Anderson CAS finished mixing the first season of *Wu-Tang: An American Saga* for Hulu in July. With him again was the ever-dependable boom operator Gregg Harris and, joining them for the first time, was 2nd boom/utility Danny Nidel. They brought back their old *Smosh* colleague, Pro Tools playback mixer Jason Stasium and a host of other day players, including boom operator Julie Stalker-Wilde, who helped them tackle the challenges of a full episode of 9–15 page-ers. Musical television shows are always fun and challenging but delving into the origins of the seminal rap group from Staten Island was also special, knowing the show will make their fans proud.

Earlier this year, Aron Siegel CAS wrapped Season 2 of DC Comics’ *Black Lightning* for The CW Network (part of the *Flash/Arrow* universe) with the help of his crew; boom op Robert Vardaros, utility Nik Waddell, and day player utility Brittany Myers. From January until early spring, Aron jumped onto and completed Season 1 of *Ambitions*, starring Robin Givens for Will Packer Productions/Lionsgate on the OWN Network. It was shot at Tyler Perry Studios with boom op Jorge Del Valle and utilities Erin Martin and Nik Waddell.

Taking his *Ambitions* crew with him in early summer, Aron mixed the feature film *Waldo*, starring Charlie Hunnam and Mel Gibson; a present-day Chinatown-style detective story.

Karol Urban CAS MPSE and Kurt Kassulke CAS just finished a film for Netflix called *Falling Inn Love* and are now beginning mix on our summer series *Gentefied*, also for Netflix. Additionally, Marti D. Humphrey CAS and Karol mixed two films this summer together for HULU’s *Into the Dark* horror film anthology: *Culture Shock* and *School Spirit*.

Checking in from NBCUniversal StudioPost Sound Operations:

In the Hitchcock Theater, mix team Jon Taylor CAS and Frank Montano are having a great time mixing *Fast & Furious Presents: Hobbs & Shaw* for director David Leitch and picture editor Chris Rouse for Universal … We are excited to have DreamWorks Animation making their
debut on Mix 6 with their animated feature *Abominable*. Myron Nettinga CAS will head the mix ... On Mix Stage A—It’s been a busy summer for John Cook CAS and Bill Freesh CAS on their now retrofitted Atmos Mix A stage. They are currently working on an Atmos show by The Network client entitled *Dream*, as well as an AMC show entitled *Lodge 49*. Those shows will fill their plate for most of the summer where they’ll then roll right into a packed fall juggling three new shows ... On Mix Stage B—Typically, Greg Watkins CAS and Derek Marcil work on Stage G, but this summer, the client preferred a bigger stage, so they moved over to Stage B to complete their 10-episode show *Dare Me* (USA Network) ... On Mix Stage C—Todd Morrissey CAS has moved over to the dialogue seat now and with his new mixing partner Eddie Bydalek, will be working on the last season of *Suits* (USA Network) for the summer. That will take them right into their typical fall slate of (2) Dick Wolf shows ... In Mix 1—Mark Fleming CAS and Myron Nettinga are busy on their stage for the summer mixing the show *Rag Tag* for Marvel, and an Atmos show, *Amazing Stories*, for The Network client, as well as slipping in a four-day mix in July on a pilot entitled *Triangle* ... In Mix 2—The show *Jack Ryan* is consuming the summer mix schedule for both Steve Pederson and Dan Leahy through August when a mix crew change will happen on that stage and Andy King CAS and Keith Rogers CAS will return from Westvind to finish out mixing their Atmos show, *Home Before Dark* (The Network) ... In Mix 5—Pete Nusbaum CAS and Whitney Purple are having a nice run with summer shows mixing both *Atypical* (Netflix) and *Four Weddings and a Funeral* (Hulu). They are in high demand for the fall again, so their run will continue all though next year.
CAS Awards and Student Recognition Award Timeline

Due to changes in the overall awards season calendar, there are considerable changes in the CAS timeline. The CAS has also taken this opportunity to change the television categories eligibility dates to contenders that air between January 1, 2019, and October 31, 2019. The timeline for next year will be November 1, 2019, thru October 31, 2020. Providing an eligible period that ends close to our entry deadline allows more members of the television community to have the opportunity to submit their work, participate, and be celebrated. The Motion Picture eligibility period will remain January 1, 2019, through December 31, 2019.

56th CAS Awards Timeline:
• Entry Submission Form available Online on the CAS website at www.CinemaAudioSociety.org Monday, September 23, 2019
• Entry Submissions due Online by 5 PM PST, Monday, November 4, 2019
• Outstanding Product Submissions due Online by 5 PM PST, Thursday, December 5, 2019
• Nomination Ballot Voting Begins Online – Thursday, November 21, 2019
• Nomination Ballot Voting Ends Online – 5 PM PST, Wednesday, December 4, 2019
• Final Nominees in each category announced Tuesday, December 10, 2019
• Final Voting Begins Online – Thursday, January 2, 2020
• Final Voting Ends Online – 5 PM PST, Tuesday, January 14, 2020
• All winners announced at the 56th CAS Awards, Saturday, January 25, 2020

2019 Student Recognition Award (SRA) Timeline:
• Entry Submission Form available Online on the CAS website at www.CinemaAudioSociety.org Monday, June 3, 2019
• Entry Submissions due Online by 5 PM PST, Monday, October 21, 2019
• Finalists announced Tuesday, November 19, 2019
• Winner announced at the 56th CAS Awards, Saturday, January 25, 2020

The 56th Annual CAS Awards will be held on Saturday, January 25, 2020, at the InterContinental Los Angeles Downtown, Wilshire Grand Ballroom, Los Angeles, California.
Craig and Associate CAS member Brian Nimens of Sound Ideas with Rob Nokes of Sounddogs after signing an agreement of acquisition of Sounddogs by Sound Ideas.

Ben Zales (music editor), Colette Dahanne CAS (re-recording mixer), Joseph Geisinger CAS (production mixer), Callie Miller (AP), David Beadle (supervising sound editor), and Frank Morrone CAS (re-recording mixer) killed it while mixing the final episode of Criminal Minds.

John Pritchett CAS, being mobile in Canada on the set of Jumanji: The Next Level.

Master Chef Season 10 Pool Party! Some of the best in the business making it happen: Kamal Humphrey, Austin Storms, Jordan Diaz, Paul Graff, Mike Snow, Martin Talty, Chris de la Fuente, Jim Champagne, Scott Hanlon, James Hunt, and sound supervisor Keith Garcia CAS.

Karol Urban CAS MPSE and Kurt Kassulke CAS are with their crew, picture editor, producers, show runner, and director wrapping the end of Season 2 of ABC’s Station 19. What an incredible group of people!
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