54th Annual CAS Awards Nominees
Sound Cart Organizing
Filmmaker Award Recipient Joe Wright
Neural Networks: Intelligent Pro Audio Processing

WINTER 2018

Career Achievement Award Recipient
Anna Behlmer
“THE SHAPE OF WATER’ IS LIKE NOTHING YOU’VE EVER SEEN BEFORE – OR DREAMED THAT YOU EVER WANTED TO SEE. IT’S PURE MOVIE MAGIC.”

CHRIS NASHAWATY, Entertainment

FOR YOUR CONSIDERATION IN ALL CATEGORIES INCLUDING

BEST PICTURE
PRODUCED BY
J. MILES DALE, p.g.a.
GUILLERMO DEL TORO, p.g.a.

BEST SOUND MIXING AND EDITING
CHRISTIAN COOKE, CAS • BRAD ZOERN, CAS RE-RECORDING MIXERS
GLEN GAUTHIER PRODUCTION SOUND MIXER
NATHAN ROBITAILLE, MPSE SUPERVISING SOUND EDITOR

THE SHAPE OF WATER
"THE shape of water is like nothing you've ever seen before. It's pure movie magic."

CHRIS NASHAWATY, FOR YOUR CONSIDERATION IN ALL CATEGORIES INCLUDING BEST SOUND MIXING AND EDITING

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BEST PICTURE

PRODUCED BY

J. MILES DALE, p.g.a.

GUILLERMO DEL TORO, p.g.a.

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Cover: Career Achievement recipient Anna Behlmer.
WARNER BROS. PICTURES
WOULD LIKE TO THANK
THE CINEMA AUDIO SOCIETY
AND CONGRATULATES OUR NOMINEES FOR
OUTSTANDING ACHIEVEMENT
IN SOUND MIXING

MARK WEINGARTEN
(Production Mixer)

GREGG LANDAKER
(Re-Recording Mixer)

GARY A. RIZZO
(Re-Recording Mixer)

ALAN MEYERSON
(Scoring Mixer)

THOMAS J. O'CONNELL
(ADR Mixer)

SCOTT CURTIS
(Foley Mixer)

WARNER BROS. PICTURES
WOULD LIKE TO THANK
THE CINEMA AUDIO SOCIETY
AND CONGRATULATES OUR NOMINEES FOR
OUTSTANDING ACHIEVEMENT
IN SOUND MIXING

“THE CRAFT OF THE MOVIE IS EXTRAORDINARY WITH SUPERB SOUND WORK.
THE FILM IS UNFORGETTABLE.”

DUNKIRK

“THE CRAFT OF THE MOVIE IS EXTRAORDINARY WITH SUPERB SOUND WORK.
THE FILM IS UNFORGETTABLE.”

DUNKIRK

THE BEST FILM
OF THE YEAR

THE NEW YORK TIMES    ROLLING STONE    ENTERTAINMENT WEEKLY

PETE HAMMOND
DEADLINE
Happy New Year to All!

Welcoming a new year with the whirlwind of awards season is always a great pleasure. It is great to see the fruits of our efforts being celebrated around the world.

I enjoy the blockbusters, as we all do, but feel a sense of joy and excitement with the treasures that are brought to the forefront in the awards season. The small-budget wonders, the lesser knowns, and the pieces of creative beauty fueled by the passion and drive of the filmmakers.

To you all, I send my congratulations and my thanks.

As you read on in this edition of the CAS Quarterly, you will see the nominees that we as a society have chosen. A look at what we have enjoyed over the year.

We are also overjoyed to be recognizing this year’s Career Achievement honoree, re-recording mixer Anna Behlmer, whose longtime collaborations with filmmakers and her work on more than 150 projects is a testament to her excellence and creativity.

As with every year that passes, the joys and triumphs are accompanied by losses. This year, the CAS Board lost one of our own when longtime Board member and 22-time Emmy winner Ed Greene passed away in August. It is rare to have such vision and talent in one man and to celebrate the life of Ed, we felt it fitting to create an award in his honor. The inaugural Edward J. Greene Award for the Advancement of Sound will be given to Tomlinson Holman CAS at the awards ceremony in February.

I am personally very happy that we will be presenting Joe Wright with our Filmmaker Award. His current film Darkest Hour exhibits Joe’s passion for all the crafts involved in filmmaking.

Finally, I would like to remind all our active CAS members to vote in the final round commencing on February 1!

I look forward to seeing you at the 54th Annual CAS Awards!

Mark Ulano CAS
President

DISCLAIMER: The opinions expressed in each article are the opinions of its author and do not necessarily reflect the opinions of Cinema Audio Society. Therefore, Cinema Audio Society carries no responsibility for the opinions expressed thereon.

Comments and suggestions are welcome and should be submitted as a “Letter to the Editor” at CASQuarterly@CinemaAudioSociety.org.

CAS WINTER 2018
NEW MEMBERS

Active
Joel Catalan     Brian Miliken
Samuel Cohen    Ken Pries
Aaron Cooley   Julian Slater
Frank DiMaulo   Dimitri Tisseyre
Bruce Greenspan Peter Waggoner
Jaya Jayaraja  Scott Weber
Gregory King   Stuart Wilson
Jon Lyga

Associate
Brian Bartelt
C. Douglas Cameron
Jacques Delacoux
Patrick Spain

Student
Xiang Li

To educate and inform the general public and the motion picture and television industry that effective sound is achieved by a creative, artistic and technical blending of diverse sound elements. To provide the motion picture and television industry with a progressive society of master craftsmen specialized in the art of creative cinematic sound recording. To advance the specialized field of cinematic sound recording by exchange of ideas, methods, and information. To advance the art of auditory appreciation, and to philanthropically support those causes dedicated to the sense of hearing. To institute and maintain high standards of conduct and craftsmanship among our members. To aid the motion picture and television industry in the selection and training of qualified personnel in the unique field of cinematic sound recording. To achieve for our members deserved recognition as major contributors to the field of motion picture and television entertainment.
As we move further into 2018, we hope you have enjoyed the holidays. In this edition, get to know more about our 2018 CAS Career Achievement Award honoree, award-winning re-recording mixer Anna Behlmer. Also, we are very excited to announce the recipient of the first “Edward J. Greene Award for the Advancement of Sound”—engineer, educator, and innovator Tomlinson Holman CAS. Read about the inspiration behind this new award and its first recipient in these pages. Also, learn more about this year’s Filmmaker Award recipient, director Joe Wright.

In addition to our honorees and nominees, we’re “talking tech” in this issue. Author Jay Rose CAS provides an excellent lesson on “neural networks” and how they are being implemented into pro audio analysis: focusing on their use in identifying and separating specific elements within a mix. Stephen Fitzmaurice CAS provides some feedback on technologies mentioned in Jay’s article by taking some software for a spin “In the Studio.” Karol Urban CAS MPSE interviews Blackmagic President Dan May, where he discusses the company’s purchase of Fairlight and the new DaVinci Resolve 14, which contains multiple professional post tools in a single application. Getting a head start on spring cleaning, Devendra Cleary CAS provides some organizational tips for our production members with help from Amanda Beggs CAS and Danny Maurer. As we inch closer to our 54th Annual CAS Awards Ceremony on February 24, Scott Jason Farr CAS and David Bondelevitch CAS MPSE provide overviews of our production and post-production Outstanding Product nominees, while Mary Jo Lang CAS explores the sound for the documentary The Distant Barking of Dogs. Don’t forget to see what your fellow members are up to in the “Been There Done That” section and comment to them at the CAS Awards ceremony about their “Lighter Side” submissions.

The CAS Quarterly is produced as a service to our members and relies on their voluntary nature. If you are interested in contributing an article—let us know! Additionally, we greatly appreciate, and want, your feedback and suggestions—so send them in! 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.

Here’s wishing you and yours a busy and healthy 2018!

CORRECTION
On page 35 of our recent Fall issue, a photo caption incorrectly identified one of our members. The top left photo, in fact, depicts President Mark Ulano CAS (nearest) and Andy Rovins CAS watching a panel straight from the console on the Burt Lancaster Stage.
NETFLIX PROUDLY CONGRATULATES OUR CINEMA AUDIO SOCIETY AWARDS NOMINEES

MOTION PICTURE - DOCUMENTARY
GAGA: FIVE FEET TWO
RE-RECORDING MIXER – JONATHAN WALES, CAS • RE-RECORDING MIXER – JASON DOTTIS

TELEVISION MOVIE OR MINI-SERIES
BLACK MIRROR
PRODUCTION MIXER – JOHN RODDA, CAS • RE-RECORDING MIXER – TIM CAVAGIN
RE-RECORDING MIXER – DAFYDD ARCHARD • RE-RECORDING MIXER – WILL MILLER
ADR MIXER – NICK BALDOCK • FOLEY MIXER – SOPHIA HARDMAN

TELEVISION SERIES - 1 HOUR
STRANGER THINGS
PRODUCTION MIXER – MICHAEL P. CLARK, CAS • RE-RECORDING MIXER – JOE BARNETT
RE-RECORDING MIXER – ADAM JENKINS • ADR MIXER – BILL HIGLEY, CAS
FOLEY MIXER – ANTHONY ZELLER, CAS

THE CROWN
PRODUCTION MIXER – CHRIS ASHWORTH • RE-RECORDING MIXER – LEE WALPOLE
RE-RECORDING MIXER – STUART HILLIKER • RE-RECORDING MIXER – MARTIN JENSEN
ADR MIXER – RORY DE CARTERET • FOLEY MIXER – PHILIP CLEMENTS
The Cinema Audio Society announces the nominees for the 54th Annual CAS Awards for Outstanding Achievement in Sound Mixing for 2017 in seven categories. Also announcing the Outstanding Product nominations.

“The CAS would like to congratulate all our nominees for their fine work in 2017. The standard of excellence from our creative community is on display for all to hear and we are delighted to be blessed with this year’s wealth of wonderful work,” said Mark Ulano, CAS President.

**Baby Driver**
- Production Mixer: Mary H. Ellis CAS
- Re-recording Mixer: Julian Slater CAS
- Re-recording Mixer: Tim Cavagin
- Scoring Mixer: Gareth Cousins CAS
- ADR Mixer: Mark Appleby
- Foley Mixer: Glen Gathard

**Dunkirk**
- Production Mixer: Mark Weingarten CAS
- Re-recording Mixer: Gregg Landaker
- Re-recording Mixer: Gary Rizzo CAS
- Scoring Mixer: Alan Meyerson CAS
- ADR Mixer: Thomas J. O’Connell
- Foley Mixer: Scott Curtis

**Star Wars: The Last Jedi**
- Production Mixer: Stuart Wilson CAS
- Re-recording Mixer: David Parker
- Re-recording Mixer: Michael Semanick
- Re-recording Mixer: Ren Klyce
- Scoring Mixer: Shawn Murphy
- ADR Mixer: Doc Kane CAS
- Foley Mixer: Frank Rinella

**The Shape of Water**
- Production Mixer: Glen Gauthier
- Re-recording Mixer: Christian T. Cooke CAS
- Re-recording Mixer: Brad Zoern CAS
- Scoring Mixer: Peter Cobbin
- Foley Mixer: Peter Persaud CAS

**Wonder Woman**
- Production Mixer: Chris Munro CAS
- Re-recording Mixer: Chris Burdon
- Re-recording Mixer: Gilbert Lake CAS
- Scoring Mixer: Alan Meyerson CAS
- ADR Mixer: Nick Kray
- Foley Mixer: Glen Gathard
outstanding achievement in sound mixing for 2017

motion pictures—animated

**Cars 3**
Original Dialogue Mixer: Doc Kane CAS
Re-recording Mixers: Tom Meyers, Michael Samanick, Nathan Nance
Scoring Mixer: David Boucher
Foley Mixer: Blake Collins

**Coco**
Original Dialogue Mixer: Vince Caro
Re-recording Mixers: Christopher Boyes, Michael Samanick, Joel Iwataki
Foley Mixer: Blake Collins

**Despicable Me 3**
Original Dialogue Mixer: Carlos Sotolongo
Re-recording Mixers: Randy Thom CAS, Tim Nielsen, Brandon Proctor
Scoring Mixer: Greg Hayes
Foley Mixer: Scott Curtis

**Ferdinand**
Original Dialogue Mixer: Bill Higley CAS
Re-recording Mixers: Randy Thom CAS, Lora Hirschberg, Jeff Lefferts
Scoring Mixer: Shawn Murphy
Foley Mixer: Scott Curtis

**The Lego Batman Movie**
Original Dialogue Mixer: Jason Oliver
Re-recording Mixers: Michael Samanick, Gregg Landaker, Wayne Pashley
Scoring Mixer: Stephen Lipson
Foley Mixer: Lisa Simpson

motion pictures—documentary

**An Inconvenient Sequel: Truth to Power**
Production Mixer: Gabriel Monts
Re-recording Mixers: Kent Sparling, Gary Rizzo CAS, Zach Martin
Scoring Mixer: Jeff Beal
Foley Mixer: Jason Butler

**Eric Clapton: Life in 12 Bars**
Production Mixer: Russell Edwards
Re-recording Mixers: Tim Cavagin, William Miller
ADR Mixer: Adam Mendez CAS

**Gaga: Five Foot Two**
Re-recording Mixer: Jonathan Wales CAS
Re-recording Mixer: Jason Dotts

**Jane**
Production Mixer: Lee Smith
Re-recording Mixer: David E. Fluhr CAS
Re-recording Mixer: Warren Shaw
Scoring Mixer: Derek Lee
ADR Mixer: Chris Navarro CAS
Foley Mixer: Ryan Maguire

**Long Strange Trip**
Production Mixer: David Silberberg
Re-recording Mixers: Bob Chealas, Jacob Ribicoff
outstanding achievement in sound mixing for 2017

**television movies and mini-series**

**Big Little Lies:**
**Episode 7**
“"You Get What You Need”
Production Mixer: Brendan Beebe CAS
Re-recording Mixer: Gavin Fernandes CAS
Re-recording Mixer: Louis Gignac

**Black Mirror**
“"USS Callister”
Production Mixer: John Rodda CAS
Re-recording Mixer: Tim Cavagin
Re-recording Mixer: Dafydd Archard
Re-recording Mixer: Will Miller
ADR Mixer: Nick Baldock
Foley Mixer: Sophia Hardman

**Fargo: Year 3**
**Episode 4**
“"The Narrow Escape Problem”
Production Mixer: Michael Playfair CAS
Re-recording Mixer: Kirk Lynds CAS
Re-recording Mixer: Martin Lee
Scoring Mixer: Michael Perfitt

**Sherlock**
“"The Lying Detective”
Production Mixer: John Mooney CAS
Re-recording Mixer: Howard Bargroff
Scoring Mixer: Nick Wollage
ADR Mixer: Peter Gleaves CAS
Foley Mixer: Jamie Talbutt

**Twin Peaks - Part 8**
“"Gotta Light?""
Production Mixer: Douglas Axtell
Re-recording Mixer: Dean Hurley
Re-recording Mixer: Ron Eng

**outstanding achievement in sound mixing for 2017**

**television series—one hour**

**Better Call Saul**
“"Lantern”
Production Mixer: Phillip W. Palmer CAS
Re-recording Mixer: Larry B. Benjamin CAS
Re-recording Mixer: Kevin Valentine
ADR Mixer: Matt Hovland
Foley Mixer: David Michael Torres CAS

**Game of Thrones**
“"Beyond the Wall”
Production Mixer: Ronan Hill CAS
Production Mixer: Richard Dyer CAS
Re-recording Mixer: Onnalee Blank CAS
Re-recording Mixer: Matthew Waters CAS
Foley Mixer: Brett Voss CAS

**Stranger Things:**
**Chapter 8**
“"The Mind Flayer”
Production Mixer: Michael P. Clark CAS
Re-recording Mixer: Joe Barnett
Re-recording Mixer: Adam Jenkins
ADR Mixer: Bill Higley CAS
Foley Mixer: Antony Zeller CAS

**The Crown**
“"Misadventure”
Production Mixer: Chris Ashworth
Re-recording Mixer: Lee Walpole
Re-recording Mixer: Stuart Hilliker
Re-recording Mixer: Martin Jensen
ADR Mixer: Rory de Carteret
Foley Mixer: Philip Clements

**The Handmaid’s Tale:**
**Episode #1**
“"Offred”
Production Mixer: John J. Thomson CAS
Re-recording Mixer: Lou Solakofski
Re-recording Mixer: Joe Morrow
Scoring Mixer: Scott Smith
Foley Mixer: Don White
“WONDER WOMAN’ IS AN ELECTRIFYING, BREATHTAKING CINEMATIC ACHIEVEMENT.”
MARK HUGHES, Forbes

WARNER BROS. PICTURES WOULD LIKE TO THANK THE CINEMA AUDIO SOCIETY AND CONGRATULATES OUR NOMINEES FOR OUTSTANDING ACHIEVEMENT IN SOUND MIXING

CHRIS MUNRO, AMPS, CAS (PRODUCTION MIXER)
CHRIS BURDON (RE-RECORDING MIXER)
GILBERT LAKE (RE-RECORDING MIXER)
ALAN MEYERSON (SCORING MIXER)
NICK KRAY (ADR MIXER)
GLEN GATHARD (FOLEY MIXER)
outstanding achievement in sound mixing for 2017

**television series—half-hour**

- **Ballsers**
  - “Yay Area”
  - Production Mixer: Scott Harber CAS
  - Re-recording Mixer: Michael Colomby CAS
  - Re-recording Mixer: Richard Weingart CAS
  - ADR Mixer: Michael Miller

- **Black-ish**
  - “Juneteenth, the Musical”
  - Production Mixer: Tom N. Stasinis CAS
  - Re-recording Mixer: Peter J. Nusbaum CAS
  - Re-recording Mixer: Whitney Purple

- **Modern Family**
  - “Lake Life”
  - Production Mixer: Stephen A. Tibbo CAS
  - Re-recording Mixer: Dean Okrand CAS
  - Re-recording Mixer: Brian R. Harman CAS

- **Silicon Valley:** Episode 9
  - “Hooli-Con”
  - Production Mixer: Benjamin A. Patrick CAS
  - Re-recording Mixer: Elmo Ponsdomenech
  - Re-recording Mixer: Todd Beckett

- **Veep**
  - “Omaha”
  - Production Mixer: William MacPherson CAS
  - Re-recording Mixer: John W. Cook II CAS
  - Re-recording Mixer: Bill Freesh CAS

*Please note that every effort is being made to determine the correct names of all our nominees. Additional nominees may be added and will be announced via daily updates as they are confirmed on the CAS website at: www.CinemaAudioSociety.org

**television non-fiction, variety, music series or specials**

- **American Experience:**
  - The Great War
  - “Part 3”
  - Production Mixer: John Jenkins
  - Re-recording Mixer: Ken Hahn

- **Anthony Bourdain:** Parts Unknown
  - “Oman”
  - Re-recording Mixer: Benny Mouton CAS

- **Deadliest Catch**
  - “Last Damn Arctic Storm”
  - Re-recording Mixer: John Warrin

- **Rolling Stone: Stories from the Edge**
  - Production Mixer: David Hocs
  - Production Mixer: Tom Tierney
  - Re-recording Mixer: Tom Fleischman CAS

- **Who Killed Tupac?**
  - Episode 101
  - “Murder in Vegas”
  - Production Mixer: Steve Birdmeier
  - Re-recording Mixer: John Reese
UNIVERSAL PICTURES & ILLUMINATION ENTERTAINMENT
THANK THE MEMBERS OF THE
CINEMA AUDIO SOCIETY
AND PROUDLY CONGRATULATE OUR CAS AWARDS NOMINEES

MATERIALS DUE: THURSDAY, 1/18
THIS AD RUNS: TUESDAY, 1/30

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OUTSTANDING ACHIEVEMENT
IN SOUND MIXING
(Motion Picture - Animated)

Original Dialogue Mixer
CARLOS SOTOLONGO

Re-recording Mixer
RANDY THOM CAS

Re-recording Mixer
TIM NIELSEN

Scoring Mixer
BRANDON PROCTOR

Foley Mixer
SCOTT CURTIS

GREG HAYES

ILLUMINATION PRESENTS

DESPICABLE ME3
On Saturday, February 24, the Cinema Audio Society will present Anna Behlmer with the Cinema Audio Society’s highest accolade, the CAS Career Achievement Award, at the 54th CAS Awards at the Omni Los Angeles Hotel in downtown Los Angeles.

As a three-time BAFTA winner, 12-time Oscar® nominee (first woman to be nominated in the “Best Sound” category), and 10-time CAS Award nominee, re-recording mixer Anna Behlmer has carved out shifting sonic worlds and rattled audiences in a career spanning across 30 years and over 150 projects. As an incredibly talented storyteller, this sound effects re-recording mixer has dominated in many genres and is known for such diverse titles as Blood Diamond, Moulin Rouge!, War of the Worlds, L.A. Confidential, and Braveheart.

A true master in her field, this Hollywood native not only engages viewers with her soundscapes but garners loyalty from longtime collaborators. Additionally, Ms. Behlmer will be the first female recipient of our organization’s highest accolade.

I was honored to spend time with Anna to discover her wisdom of the field, how she navigated the waters to reach her level of success, and her example as an inspiration.
It blew my mind when I learned that being a re-recording mixer wasn’t your clear and immediate goal. It is so competitive, how do you find yourself here?

I was at Todd-AO working with Gary Bourgeois and Chris Carpenter as their recordist. We had just finished a film directed by Penny Marshall. At the time, there were no female re-recording mixers working in feature films. So Gary, with the support of J.R. Delang and Chris Jenkins, encouraged me to be a part of the mixer training program. Todd-AO had a program where the recordist “mix tech” on a stage could complete their backroom duties and then sit on the mixing panel and learn from the mixers they worked for. The program was 90 days and after completion, you either returned to your recordist position or moved to a mixing position if one was available. Many of the mixers today started in that program.

And it was never your goal as a recordist to become a re-recording mixer?

No, not really, I was very young at the time and I was just so happy to have a good job [and] to be making good money. My husband and I had just bought a house and things were great, so it never crossed my mind. Besides, making a move to mixing would have meant working less at first and that worried me.

Were you aware that you were actually breaking glass ceilings?

Not at all, I was so busy just trying to be the best mixer I could be. I felt like I had to work harder and be better. It was a boy’s club and I just wanted to be accepted; that was my main focus. I wasn’t thinking about breaking ceilings or being a role model.

When I came to LA, I found that there was so much competition to mix that many studios were as concerned with how many clients I could bring to their studio as they were interested in my level of service or mixing ability. Did you have to generate your own clientele coming up?

No, it was a different environment then. Todd-AO was a very successful facility with many fine mixers and it
seemed like there was plenty of work. I do remember when I completed my training program, management did not have a mixing position for me and wanted me to return to the machine room. I said, “No, I will take my chances.” I ended up bouncing around the company and working with many different mixers. It was a great experience. Then, Chris Jenkins suggested I spend some time with Richard Portman. I spent two years working with Richard.

**How incredible!**

Yes. Oh my God, he was just so amazing and so crazy and so fun and so … so many things all rolled into one! [CHUCKLES] But mostly, Richard was an artist and a storyteller. I learned a great deal from him.

**How do you think your development as a mixer progressed working with these two incredibly talented mixers?**

I think in the beginning, you’re just so damn busy figuring out what everything does and getting your mechanics down. I mean, you’re so busy with all the minutiae. It’s only when you get more comfortable that you can relax and be creative.

Gary gave me the good, fundamental knowledge to be able to get to that next place. Because without that, you can’t “watch the screen and let it tell you what it needs.”… Richard Portman quote.

**Has your workflow changed significantly as a result of changing technology?**

Yes, we didn’t even have full automation the first day I was mixing. So for me, the evolution has been incredible.

**But you baked down, correct? You weren’t dealing with 300 tracks.**

Yes. I pre-mixed from raw tracks. Lots of them. I used to sit on the floor of the stage and spread out the cue sheets that resembled sheets of wallpaper. I used colored pens on the sheets to group like material together. And [I] organized my pre-mixes. That’s why there are colored Sharpies on a mixing stage.

It just must be a throwback because we do still have Sharpies on stages. You were also limited on the number of pre-mixes you could make because the older consoles couldn’t handle as many inputs as today’s consoles and you would also run out of dubbers to play the pre-mixes, so organization was key.

**Do you feel a squish at all with budgets shrinking? Are you working with the same crew size?**

Of course. We are all feeling squished. You rarely get as much time as you would like to pre-mix or [work] on a final mix. But the expectations haven’t changed and the demands are even greater. Crews are much smaller—less people doing more work. That is one thing technology has facilitated.

**Because features are so custom and unique, how do you determine the time you will need?**

It’s all based on the budget and the demands of the film’s content.

**I would assume you get a screener and you get to make notes?**

It generally works like this: They give me a timeframe for pre-mixes and final mix. After watching the film and consulting with my mixing partner, I let them know if I think it’s doable. Sometimes you’re given X amount of days for pre-mixing and we split the days up according to the film’s content. If it’s a dialogue film, more time is allotted for those pre-mixes. If it has heavy effects, more time goes to FX pre-mixes. I will always do my best to stay on schedule and budget.

**You give it serious hustle.**

Oh, yeah. My clients know that staying on schedule is just as important to me as it is to them.

**When a director approaches you, can they envision their story through sound or do they rely on you to suggest and navigate what will enhance their narrative?**

Some can envision their own story. But, for example, I have suggested Atmos as a great tool with subtlety and quiet because you need something specific happening to hear it. If you’ve got a big action scene with music and effects all playing loudly together, you’re not going to be able to really feel it. It’s all in the subtlety and it can be so beautiful.
What’s your favorite thing to mix? Do you have a genre or do you like that you jump around?

I’m an effects mixer. I like action. You know, I like a good gunfight; I like a good car chase. Helicopters are fun sequences.

Was there a time where you tried dialogue and were looking at dialogue?

No. I’ve done a temp dub here and there and an occasional student film as a favor but no, I’ve never really committed to doing dialogue, ever.

Sometimes I wonder about it. It might be a necessity in the future. I don’t know. It really just depends.

Did you ever have to prove yourself as an effects mixer for a particular genre?

You know, my life changed when I did Braveheart and got nominated. Then everybody stopped doubting and stopped questioning.

Did you know Braveheart was going to be a “big movie” that was going to make a change in your career?

Well, I remember watching it and I remember temping it for the first time, thinking “this is awesome!” But no, I didn’t really know it would change things for me.

[I thought], “What a great movie.” And then I can remember print mastering it when the Dolby rep said to me, “You know, you’re going to get nominated.” And then I started hearing that from other people too and it began to sink in.

So after that, you don’t have to prove yourself. People know that you can handle your business.

Yeah, pretty much.

So do you have any advice for people who are looking to follow in your path?

Be good to people. Because I wouldn’t be here if others weren’t good to me. I got a lot of opportunities. People helped me—I had mentors. It doesn’t happen anymore. It makes me sad. It’s gotten so cutthroat. Budgets are so small and everybody’s so ready to undercut the next guy.

How important was mentorship to you?

I’ve always had a great reverence for those who came before. I admired them and hung on every word of advice they gave me. I got to work with Chuck Campbell, I got to work with Richard Portman and … these people, I held in such great regard. Their approval was very important to me. Inevitably, it’s the great storytellers that succeed. It is. It still is.

I specifically try to pair myself with people who have more experience—decades more experience—because I recognize the incredible advantage of earned knowledge.

You have to love it … We put up with all the crazy hours and make a fair amount of personal sacrifice—because it’s fun. It’s satisfying. It’s rewarding.
Right. In my opinion, there is much more to mixing than just knowing how to use the tools. Experience is priceless. Who taught you to mix dialogue?

I originally had to figure it out myself because there was no other way to learn. Eventually, I came to LA to find my masters.

And who helped you?

Todd Langer was probably the person who spent the most time with me.

So, you saw how it should be done.

Yes.

And then you realized that you weren’t quite doing it the right way.

Yes.

But you were in the ballpark.

I was in the ballpark. He was an incredibly generous man and he would come in and he’d be like, “No, no, no. This is a tender moment,” or “Watch this, focus on that.” “What story are you trying to tell?” I started to see the real power of what we can do.

Richard would pre-mix his dialogue against my background pre-mixes. He didn’t want to overly sanitize the tracks and sacrifice the tonal quality of the voices. Sometimes you can do too much.

That’s very true. Just because something is cleaner does not mean it is better.

No. It’s not. It doesn’t sound right. [Natural ambience] sounds like reality. Isn’t that what we’re doing here?

What do you think is the thing you have to have in order to survive and thrive in this world as a re-recording mixer?

I think you have to love it. I think that’s the one thing that all of us are fortunate enough to have in common—sound editors, mixers; we love what we do. We put up with all the crazy hours and make a fair amount of personal sacrifice—because it’s fun. It’s satisfying. It’s rewarding. I feel a great sense of pride when I see a film that I’ve mixed and my name is on the screen. So that’s it. •
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01.17.18

AA
Joe Wright to receive CINEMA AUDIO SOCIETY FILMMAKER AWARD

by Dorothea Sargent
Darkest Hour director Joe Wright will receive the Cinema Audio Society Filmmaker Award at the 54th Annual CAS Awards on February 24, at the Omni Los Angeles Hotel at California Plaza in downtown Los Angeles.

“I am delighted to announce Joe Wright as the CAS Filmmaker honoree for our 54th CAS Awards. The CAS recognized Joe’s commitment to sound when we nominated his film Hanna for Outstanding Sound Mixing—Motion Picture,” said CAS President Mark Ulano. “His current film Darkest Hour, with an amazing performance by Gary Oldman, also exhibits Joe’s passion for all the crafts involved in filmmaking. With the director as conductor, Joe knows how to get the best out of every instrument in the filmmaking orchestra, which makes him an excellent choice for Filmmaker.”

Born to a family of puppeteers, Joe Wright grew up in the theatre his parents founded, “The Little Angel Theatre” in Islington, London.

Wright studied fine art, film, and video at Central Saint Martins College of Art and Design. After college, he worked on music videos and short films until 1997, when he was commissioned to direct Nature Boy, a four-part miniseries for BBC2. Nature Boy was awarded Best Drama Serial by the Royal Television Society. This was followed by several other highly acclaimed, nominated and awarded miniseries, including Bob & Rose, written by Russell T. Davies; Bodily Harm, starring Timothy Spall, George Cole, and Lesley Manville; and Charles II for BBC1, starring Rufus Sewell, which won the BAFTA for Best Drama Serial.

Wright made his feature film directorial debut in 2005 with Pride & Prejudice, starring Keira Knightley, Matthew Macfadyen, Rosamund Pike, Donald Sutherland, Brenda Blethyn, and Carey Mulligan (in her first screen appearance). The critically acclaimed film won Wright BAFTA’s Carl Foreman Award for Special Achievement by a British Director, Writer or Producer in Their First Feature Film. He was also honored with the London Critics’ Circle Film Award for British Director of the Year and the Boston Society of Film Critics’ Award for Best New Filmmaker. Pride & Prejudice was nominated for five additional BAFTAs, four Academy Awards, and two Golden Globe Awards.
In 2016, Wright directed the acclaimed "Nosedive" episode of the television series *Black Mirror*, which starred Bryce Dallas Howard in the leading role and earned her a Screen Actors Guild Award nomination.

Wright made his debut in the theatre world in 2013 at the Donmar Warehouse with *Trelawny of the Wells*, an Arthur Pinero play re-worked by Patrick Marber. This was followed by the critically acclaimed *A Season in the Congo* at the Young Vic Theatre, starring Chiwetel Ejiofor, and most recently, *Life of Galileo* at the Young Vic Theatre, featuring music by The Chemical Brothers.

Wright is a director of Shoebox Films, a London-based film and television production company which, among other work, produced Steven Knight’s critically acclaimed and multi-award-winning thriller *Locke*, starring Tom Hardy.

Wright lives in London with his wife, classical sitarist Anoushka Shankar, and their two sons.

Wright will be the 13th CAS Filmmaker honoree. Past honorees have been: Jon Favreau, Jay Roach, Richard Linklater, Edward Zwick, Jonathan Demme, Rob Marshall, Taylor Hackford, Henry Selick, Paul Mazursky, Bill Condon, Gil Cates, and Quentin Tarantino.

Wright’s second feature, *Atonement*, based on Ian McEwan’s novel, stars Keira Knightley, James McAvoy, Benedict Cumberbatch, and Saoirse Ronan. The film received 13 BAFTA Award nominations, and won for Best Film and Best Production Design; received seven Academy Award nominations, including Best Picture, and won the Academy Award for Best Original Score; received seven Golden Globe Award nominations, winning awards for Best Picture [Drama] and Best Original Score.

Wright next directed *The Soloist*, starring Robert Downey Jr. and Jamie Foxx, followed by the sleeper hit *Hanna*, with an electro music score by The Chemical Brothers, starring Saoirse Ronan and Cate Blanchett.

In 2011, Wright directed *Anna Karenina*, starring Keira Knightley, Aaron Taylor-Johnson, Jude Law, Domhnall Gleeson, and Alicia Vikander—in her first English-speaking role—from a screenplay penned by Tom Stoppard. The film was nominated for six BAFTA Awards and four Academy Awards, taking home both trophies for Best Costume Design.

In 2015, Wright directed *Pan*, an origin story of the beloved Peter Pan characters, starring Hugh Jackman, Garrett Hedlund, Rooney Mara, and Levi Miller.
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STAR WARS
THE LAST JEDI

WaltDisneyStudiosAwards.com
The Cinema Audio Society has announced that a new award has been created in memory of Edward J. Greene CAS. The award will be called the Edward J. Greene Award for the Advancement of Sound and will be presented when the Board feels it is merited. This inaugural award will be presented to previous CAS Career Achievement recipient and AMPAS Technical Achievement Award winner Tomlinson Holman CAS, creator of THX.

“The passing of Ed Greene had a profound effect on the CAS and sound community at large. The Board of Directors and the former Presidents wanted a meaningful way to honor Ed’s memory. So this award in Ed’s name, to acknowledge the Advancement of Sound, was created,” said CAS President Mark Ulano. “Presenting this inaugural award to Tomlinson Holman who has contributed so much to the sound community in both cinema and broadcast is the perfect representation of who and what this award represents.”

Holman is exceptionally proud to receive an award named for a man he knew well and respected, Ed Greene. Ed let Tom stick his head above Ed’s during a SAG Awards and an Academy Awards rehearsal, and it was a highlight of Tom’s audio experience to see such a master at his craft.

Born in Oregon, Illinois, Tom walked to Saturday-morning movie serials for 25 cents admission. As a prototypical “science kid,” his mother made several trips to the principal’s office because Tom kept sneaking into the auditorium after hours to hang lights and do sound checks.

At the University of Illinois, he began concentrating on sound during after-school activities in the theater department. His undergraduate film partner was director Andrew (Andy) Davis. After graduation, he stayed on at the university for five years in its film production unit reading practically everything published about audio (impossible today). After a devastating fire, Tom got the post department up and running again.

He eventually bought a Nagra recorder and started doing projects, usually at the request of Andy, who ultimately asked him to come to Hollywood to work on a Blaxploitation feature, Cool Breeze, as a boom operator for first-time recordist Jeff Wexler CAS. Studying the Nagra schematics (which he thought he had to understand as a soundman) he found many unusual things, an inspiration for later on to “Think Different.”
“Pixar’s ‘Coco’ is another triumph of imagination and sure-footed storytelling, transporting viewers to a vividly-realized world in the service of a universally moving story.”

FORBES, Scott Mendelson
A trip to Boston resulted in an interview and job with Advent in Cambridge, Massachusetts. The founder, Henry Kloss, was occupied making tubes and screens for the first widely sold projection television, so he left the audio design part of the business to Tom, with Henry’s mentorship. After Henry left Advent, Tom left to start Apt Corporation, making a little higher end product, preamps, and power amps. One of his proudest moments was to get a letter from Stefan Kudelski thanking him for the preamp Tom had given him since the Nagra inspired non-conventional thinking in circuits. While in Cambridge, Tom and Fritz Koenig began personal and business partnerships that continue to this day.

When George Lucas sought a rethink of film systems, Tom’s chops as inventor of audio and video systems landed him a position as Chief Engineer of Post Production at Lucasfilm in Marin County, California. While the Computer Division was tasked with digitizing everything, Tom was challenged to work on the ends of the chain that would be needed no matter whether it was an analog or digital workflow. For over 30 years, theater sound system technology had stagnated even as many improvements in loudspeaker theory and design had occurred. Tom evaluated those improvements, invented some new technology, and then combined them into a system so impressive that George Lucas named the system THX after Tom’s initials and the critical cross(X)over electronics Tom invented. With a companion Theater Alignment Program, THX standards included room acoustics and even projection standards which created a standard presentation platform deployed on a massive scale worldwide upon which cinema audio professionals could rely.

After seven years full time at Lucasfilm, Tom started teaching at USC Cinema, while commuting to Skywalker Ranch weekly and working principally on THX and its spinoffs. In 1995, he left Lucasfilm to co-found TMH Corporation with Koenig, made products, edited a magazine, produced books, and consulted, mostly on the Hollywood transition in television to 5.1. He also continued teaching and researching at USC. In 2011, Tom joined Apple.

Tom's acceptance of the Edward J. Greene Award for the Advancement of Sound commemorates not only Tom’s great technological achievements and the advancements he has gifted to our craft but commemorates an award in the name of our great friend, innovator, and peer, Ed Greene. The CAS is honored to have the opportunity to recognize the contributions of both of these individuals to our world.
“Compelling, relevant, surprising, and visually stunning.”
– FORBES, Mark Hughes

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www.DPAmicrophones.com/accessories/concealer-for-dscreet-slim-4060-4061

Lectrosonics: Duet Wireless Monitor System

The new system consists of the M2T dual-stereo half-rack transmitter and M2R diversity belt pack receiver. The Duet covers the UHF frequencies of 470 MHz-608 MHz in a single range, uses digital modulation for transmission and can accept analog or Dante digital inputs. The input preamp circuits use a special balanced amplifier with very high common mode rejection to minimize hum and noise. A Dante Ultimo™ interface via dual RJ45 connectors accepts Dante networked audio inputs and can cascade the digital stream to additional units via CAT6 cables. An additional RJ45 jack provides an Ethernet connection for programming and control via Wireless Designer™ software and a USB jack on the front panel allows for firmware updates. The M2R bodypack receiver employs advanced antenna diversity switching during digital packet headers for seamless audio with 250 mW available to drive headphones or earphones. Both the M2R and M2T units have two-way IR sync, so scan data from the receiver can be sent to the transmitter and thus onto the Ethernet network for use by Wireless Designer™ software for frequency planning and coordination purposes. The system also includes a FlexList™ mode, where a number of names and associated frequencies can be stored in the receiver.


Sonosax: SX-R4+

The Sonosax SX-R4+ is a compact 16-track recorder with built-in timecode generator that supports up to 192 kHz. Audio over IP with AVB, Dante or Ravenna are also supported. The UI is very customizable through programmable buttons on the knobs and touch screen. Four mic ins, two line, 10 AES (two shared with AES output, can do AES42 using the XLR ins). Supports up to 135 dB of dynamic range. Supports a removeable intelligent Aspired Energy battery internally. Additional eight knobs/preamps with an RC8+ or AD8+ are available. Built-in Wi-Fi web interface. Overall dimensions 200 x 50 x 144.5 mm (7.87” x 1.96” x 5.7”) and weighing 2.64 lbs with a 48 Wh battery.

www.Sonosax.ch/product/sx-r4p/

Sound Devices: MixPre-10T Recorder

The MixPre-10T is a compact 10-input recorder with built-in timecode generator and reader, offering up to 12 tracks of polyphonic WAV file recording at up to a 192 kHz sampling rate. The MixPre-10T offers Bluetooth connectivity for remote control with iOS and Android devices. The MixPre-10T is designed with new Kasmir mic pres and features a touch-screen interface. It offers a USB audio interface featuring 12 channels in and four channels out from a Mac or Windows computer at up to a 96 kHz sampling rate. The MixPre-10T features the unique ability to record to an SD, SDHC, or SDXC media card while simultaneously audio streaming via USB. As an added benefit, the MixPre-10T includes the ability to automatically copy recordings to a USB thumb drive. Designed to allow a user to start recording right out of the box, the Basic mode takes the guesswork out of audio recording and is intended for stereo recording applications. Advanced and Custom modes offer access to multi-channel recording and advanced settings, such as metering, routing, timecode, mic pre gain, stereo, and M/S channel linking, input/output delay, headphone presets, and more. The MixPre-10T weighs in at 32 ozs with an overall footprint of 1.375” x 8.125” x 6.875.”

www.SoundDevices.com/products/recorders/mixpre-10t

Zaxcom: ZMT3 Bodypack and Boom Pole Wireless Transmitter

The ZMT3 bodypack transmitter sets a new standard for wireless production sound. Ultra miniature lightweight design and low-heat output make the ZMT3 a favorite with both actors and costume departments. The ZMT3-Phantom boom pole transmitter includes a 12V/48V phantom power supply eliminating the need for a cable in the pole. This makes the boom pole lighter and prevents cable noise inherent in boom pole operation. Key features include NeverClip compressor distortion elimination, internal recording with wireless timecode reference, digital audio modulation with no transmission artifacts, Zaxcom High Density (ZHD) spectrum efficient modulation, Zaxnet RF remote control, six-hour battery life, and Inter-modulation free operation.

Zaxcom.com/products/zmt3-phantom/
Outstanding Product Award Nominees

Outstanding products for 2017
post production

Dolby: Dolby Atmos Content Creation Tools

Dolby Atmos Content Creation Tools easily generates all of your channel-based deliverables from your Dolby Atmos mix, whether it is a 5.1, stereo, or binaural mix, or a B-format render, the Dolby Atmos Renderer can create it. The Dolby Atmos Panner Plug-ins for Pro Tools lets you place audio objects in a 3D space and generates object metadata that is authored with the final content. The Dolby Atmos Renderer receives audio and metadata from Pro Tools and creates multichannel speaker outputs, binaural headphone outputs, and channel-based deliverables while also recording and playing back .atmos format deliverables. The Dolby Atmos Monitor provides signal metering and a dynamic view of all mix objects, so you can see where each object is placed in the 3D space.

Exponential Audio: R4 Reverb

R4 was designed with historic hardware reverb units in mind, but with many new features only possible with modern plugin development technology. R4 is a native plugin, requiring no special hardware and offering even more flexibility while continuing to work with its now-famous minimal load on your computer. Overdrive is helpful in ‘warming up’ a reverb, by adding analog “grit.” Reverb settings can now use a tail suppression circuit for more dynamic response by dynamically lowering reverb levels in louder parts. Users have long asked for tempo-controllable pre-delay; R4 now has this implemented. R4 offers a new Hall algorithm, as well as updated versions of the R2 algorithms. It includes a Modulated EQ. Gated reverb effects have been added, resulting in more than 1,200 presets. This is much more than a minor upgrade to R2.
www.ExponentialAudio.com/r4page/

FabFilter: Pro Q2 Equalizer

Pro Q2 offers many new features, including an improved EQ Match feature so you can save the input spectrum as a reference spectrum. There is also a new Permanent Spectrum Grab mode, so you can click and hold in the spectrum area until the spectrum freezes and turns blue, and you can now grab multiple peaks in the frozen spectrum. The frequency scale at the bottom of the interface now displays the frequency under the mouse cursor. If the piano display is enabled, the key under the mouse cursor is highlighted and its note number is shown. The AAX plugin has been updated to enable the dynamics display on the Avid S6 console, with improved Avid S6 page tables mappings in the AAX plugins, now more closely following Avid’s conventions for a better workflow.
www.FabFilter.com/products/pro-q-2-equalizer-plug-in

iZotope, Inc.: RX 6 Advanced

RX 6 Advanced is an audio repair tool that can be used to restore damaged or noisy audio to pristine condition. New tools include De-rustle, De-wind, Dialogue Isolate, De-bleed, De-ess, Mouth De-click, Breath Control, and MP3 Export. Updated tools are De-click, Voice De-noise, and De-bleed. Ambience Match.

Todd-AO: Absentia DX

The Absentia DX algorithm analyzes production dialogue recordings and removes obvious hums, wireless rings, and ticks, while maintaining the integrity of the human voice. ABDX was developed for a network television show with difficult repetitive manual labor. Simply drag and drop volumes, folders, or sound files directly onto the application (or the settings window), and files will begin processing. An Absentia DX progress window will appear, with the number of sound files queued, and a status bar of the files being simultaneously processed. ABDX sound files’ metadata and Sound File ID are identical to the original files except for the noises that have been removed. With identical metadata, you can swap the original files with ABDX files or vice versa.
www.Avid.com/plugins/todd-ao-absentia-dx

Post-production product summaries provided by David Bondelevitch CAS MPSE
Finalists for the CAS Student Recognition Award

Five finalists from schools across the country have been invited to attend the 54th Annual CAS Awards on February 24, where the recipient of the CAS Student Recognition Award will be revealed and presented with a $2,500 check.

“It is always exciting to announce the finalists for the CAS Student Recognition Award. These talented students represent the future of our art form and the continuation of the legacy of those who have come before them,” said CAS President Mark Ulano. “The Student Recognition Award judges reviewed and evaluated the applications and they were challenged to ultimately select these students who demonstrate enthusiasm and potential in the field of sound mixing or recording. We congratulate and welcome these five student finalists to our sound family.”

Eligibility for the CAS Student Recognition Award is open to any student enrolled and in good standing in a bachelor’s or master’s degree program at an accredited college or university. Students may be pursuing any major (indeed, many current CAS members majored in music, psychology, English, engineering, and other fields), but should have a demonstrated interest and some experience in production and/or post-production sound for film and television.

The Award will be presented at a sealed-envelope dinner on February 24 in the Bunker Hill Ballroom of the Omni Los Angeles Hotel at California Plaza.

The CAS Student Recognition Award finalists are:

Haley Bowers
Savannah College of Art and Design – Savannah, GA

Brendan Gates
Loyola Marymount University – Los Angeles, CA

Xiang Li
Chapman University – Orange, CA

Danielle Price
Savannah College of Art and Design – Savannah, GA

Anna Wozniewicz
Chapman University – Orange, CA

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Neural Networks: A NEW WAY TO THINK ABOUT PROCESSING

by Jay Rose CAS

Two new sets of audio tools promise things that were previously impossible, like automatically isolating—rather than just suppressing—non-dialogue elements in production recordings or mixed tracks. The good news? Audionamix’s TRAX Pro 3, XTRAX Stems, and SVC, along with iZotope’s RX 6 Dialog Isolate and De-rustle modules, actually do what they promise! There are limits, of course: while these programs give you unprecedented control in ideal situations, real-world challenges may produce unpleasant artifacts if you turn them up too high … just like almost any other tool in the studio.

Their magic depends on a new concept for pro audio: neural networks. This technique has exploded, driven by demands of speech recognition and image processing in consumer applications. As studio computers get more powerful, and software developers get more experience with this kind of computing, we’ll see a lot more applications in production and post.

Neural networks were proposed as theory in the 1940s, and the first simple ones appeared in labs in the 1950s and ’60s. But they were limited by the computers of the time and not really practical. Studio engineers had to rely on standalone analog filters, compressors, and other hardware, patching them into channels of the era’s limited consoles. If we wanted more complex effects, we’d string multiple processors in series (such as putting a tape delay before a reverb, to simulate the slap of a stadium PA).

We’ve come a long way since analog mixing, but we still “route signals through processors.” Our DAWs and digital consoles let us drop software plugins into a channel. Or we route clips through plugins offline, replacing each clip with a processed version.

Most of those plugins were designed using a similar process! Developers create a signal path made of basic functions—envelope detectors, delays, mixers, and so on—feeding one another. This becomes the processing recipe or algorithm. They build it by stringing virtual modules together in a programming environment. Figure 1a shows how this worked for a simple plugin that simulates a 16mm classroom projector—complete with audio degradation, wow and flutter, gate chatter, and a motor that ramps up to speed when you turn it on. I wrote the processor in the open-source SonicBirth application a few years ago, when I had to futz a bunch of elements for a project, and the figure is a screenshot from that program. I added the red labels so you could trace the signal flow more easily. The rectangles with just one wire are user controls or numeric constants; most of the other rectangles are single processing functions like generators or filters, but some are shortcuts to other multi-processor algorithms (like the envelope follower in the top row). Figure 1b shows the plugin’s control panel; despite all the internal connections, the user sees an integrated whole. This is a simple plugin, thrown together to solve an immediate need. Sophisticated commercial processors can have hundreds of internal modules.

Figure 1a: The algorithm for a simple processor, expressed as a circuit diagram in SonicBirth.

Figure 1b: That processor’s control panel.
Algorithms can be powerful. But they need precise definitions of what you’re doing, with a step-by-step signal flow. Some processing chores don’t lend themselves to that approach.

For example, you might want a processor that identifies and reduces the ers and ums of natural ad-libbed speech, without affecting similar sounds that are part of a word. Even if you could write rules covering all the possible variations to this problem, there’d be so many rules that the algorithm would be too unwieldy for most studio computers.

Compare that with how human dialogue editors approach the task. They identify those vocal fillers intuitively, replace them with room tone as necessary, and never even think about an algorithm. They don’t use a flow chart; they use their brains and experience. Neural networks let the machine also have a “brain.”

How to build a brain.

First, a reassurance. Neural networks aren’t the “Artificial Intelligence” of sci-fi. They need rigorous training sequences. Your nifty new processor won’t decide on its own to Kill All Producers.

But their basic building block is very similar to a human neuron. Both can have multiple inputs. Both generate an output based on the combined states of these inputs. In computer neurons, all the inputs are summed and the result compared to a threshold (usually “is the sum greater than zero”). If the sum reaches the threshold, the neuron outputs a binary 1. If the sum doesn’t reach it, the output is 0.

While neural networks are computer code, you can visualize them as a matrix of neurons organized into columns—called layers—and rows, as in figure 2. The input layer receives information about the signal being considered. The processors in this article have multiple neurons in the input and output layers because they look at a signal that’s broken into frequency bands, and each band goes to a different neuron. (iZotope’s processors use 1024 bands.)

The numbers then pass through internal columns of neurons before reaching the output. These are called hidden layers because the programmer doesn’t determine how their neurons respond to any input. The software itself defines those reactions through a training process, like the one described below. In these audio networks, each output neuron represents resulting energy in a single band. For example, if the network has been trained to discriminate dialogue from music, the output could be thought of as a spectrogram representing just the dialogue. Or we can subtract dialogue values from the input, and get just the music.

While we don’t know what the hidden layers are doing, how they’re connected is critical. There are a lot of connections: every neuron in one layer passes data to every neuron in the following layer. As the network learns a task, each connection may handle that data slightly differently.

Making connections.

Human neurons are connected by synapses. When humans learn something, the synaptic connections between some neurons get strengthened. The next time we encounter the same stimulus, those neurons are more likely to communicate.

In a neural network, synaptic strengthening is replaced by stored numeric weights for each connection. These are multipliers, usually a fraction between -1 and +1. Each neuron in a layer can have a different weight assigned to each connection from the previous layer.

It’s easy to understand this process by showing typical weighting for a portion of our diagram. We’ve assigned colors to make the paths easier to follow.

In figure 3, neuron A is firing and outputting a one. It passes its 1 to neurons D, E, and F. But each branch is multiplied by a different weight: neuron D gets .4 (that is, the product of 1 x .4). Neuron E gets -.7, and so on. Different weights, shown in different colors, affect the signals from neurons B and C.

Neuron C isn’t firing at all for this particular input—that’s why it’s drawn as a darkened circle—and sends a zero. So even though it’s got its own weightings, they get multiplied by zero. No signal is passed from C to the next layer.

The resulting math is grade school simple:

• Neuron D sees the .4 weighting from neuron A, and the .3 from neuron B. (It ignores the zero coming from neuron C.) The sum is .7, so it fires and sends a one to the weightings for the next layer.

• Neuron E sees -.7 from neuron A, and .2 from neuron B. These add to -.5. That’s less than 0, so E doesn’t fire. It has zero output.

If the input changes over time, like audio does, you need to add temporal factors. One way is to process the input with overlapping windows, each containing a few milliseconds’ worth of audio. Or you can let the weighted neural outputs ramp relatively slowly between values, adding a “reaction time” when the signal changes. Or you can give the neurons memory, storing values from one time-slice to be considered during the next.
Once the network has appropriate weightings, it can start some inputs differently than others. It can make meaningful decisions. There’s just one small problem: the system’s programmers have no idea what those weightings should be. A newly designed network doesn’t know anything.

School for neurons.

Fortunately, the neural network can teach itself … with a little human help. You need a bunch of samples with known results. This could be hundreds of clips of production dialogue, each of which has had its spectrogram analyzed by a human operator to sort the actors’ voices from the backgrounds\(^1\). The analysis is stored as an “answer key” with each sample.

Start by letting the network assign random initial values to its weightings. Feed it a test clip. Have the computer check how closely its result agrees with the answer key. If the result is wrong for any band—and it probably will be, since we’re starting with random weights—the network decreases weightings on the path that fed that band. If a result is almost correct, it increases that path’s weightings by a small amount and tries again. Eventually, the weights leading to a correct answer get optimized. It’s similar to how human synapses get strengthened when we learn a physical skill. After lots of training passes and corrections, a neural network can get close enough to meet the design goals\(^6\).

This training requires lots of samples and lots of repetition. Developers run the training passes through very fast computers, using their own custom server farms, along with time on even bigger farms like Amazon Web Services.

Building Audionamix’s networks took as much as a week of initial training, followed by human design tweaks, followed by more training. iZotope created some 10 million individual weights during training. They represent about 30 megabytes of numeric data in the finished product.

Nature vs. Nurture

Algorithmic processing works as designed, every time. If it doesn’t sound the way you expected, it’s because you made a mistake in the design. Fix this part of the circuit, and you’ve solved the problem.

Neural networks, on the other hand, can be only as good as their training. The sample set has to be valid for the processing goals, and include enough samples of every possible condition. If you miss a condition while training, the network may treat it randomly when it encounters that condition in the field. If the samples don’t have enough variation—that is, if they all sound too similar—the network may fail with real-world inputs.

Basic speech recognition networks (like the one in your phone’s digital assistant) get trained with immense available libraries, compiled from countless phone calls in more than 100 languages by services like Google Voice, and corrected by native speakers who used the service.

Audio processing networks, like the ones in this article, have to contend with wide bandwidth inputs, a much fuzzier definition of what’s signal and what’s noise, and an output that can’t be defined as phonemes or words. These are different challenges.

So while speech recognition is a fairly mature technology, film sound processing via neural networks is just getting off the ground.

Brains and personality.

It takes more than just a well-trained network to make a successful processor. Real-world inputs have to be processed into columns of numbers the network can handle, and the output has to be turned into something the operator can use. This requires algorithmic processing, along with careful design on both sides of the network.

At least in today’s world, designing an audio neural network also involves compromises. You have to balance the size and construction of the network with available computer power, since the number of time-consuming math operations grows exponentially as the matrix gets bigger. The input and output algorithms add to the computing load. The neural network products in this article are processor-intensive, and—as yet—can’t handle audio streams in real-time.

Designers will consider other network topologies as well. The best choice for an application might not need all the connections we’ve drawn, or it might feed signals back to earlier layers. iZotope uses a relatively new recurrent architecture called Long Short Term Memory\(^7\).

So, how well a neural network reaches its goals depends on the designers’ experience and assumptions, lots of testing, and plenty of “secret sauce.” iZotope’s and Audionamix’s implementations have similar goals. But the products are different.

\(^1\) Or start with a big bunch of clean recordings, mix in your own noises, and consider the original unmixed dialogue to be the answer. This technique doesn’t require as much skilled labor, and is often in conjunction with standardized speech sample collections.

\(^6\) If you kept training long enough and had a diverse enough sample library, the result could approach absolute perfection. In practical terms, however, training has to stop so a product can be brought to market. Think of any remaining confusion in the network as the logical equivalent of signal-to-noise.

\(^7\) It’s a confusing name, and its math is beyond me. You can see a discussion of the technique at www.wildml.com.
Hands-on.

This is not a full review, but rather a first glance at differences between the products. The biggest difference is the sound—they do their jobs differently, so we’ve run test clips and posted the result. But the products also have different interfaces, and different computing requirements, which we discuss.

They also have one important thing in common: These are not like the multiband expanding noise reducers you’re already used to. They don’t use thresholds set by a noise-only sample, and don’t rely on psychoacoustic masking to bury noise when there’s something going on in dialogue. In fact, either one can create two separate stems, one for dialogue and one for non-dialogue. A noisy recording—or one with audience reactions or music—might have things going on in both stems at the same time.

iZotope’s Dialog Isolate and De-rustle modules (figure 4) are part of their RX 6 Advanced package, and use a spectrogram and multiple previews similar to previous RX versions. Isolate has three knobs: wide-range volume sliders for Dialog and Noise, and a Separation Strength control that sets how strictly the process defines “dialogue”: higher values will trap more noise, but are more likely to add artifacts to speech. De-rustle, which has been specifically trained for wardrobe sounds picked up by a lav, has only two knobs: Strength (similar to the one in Dialog Isolate) and Ambience preservation to keep the lav from sounding too sterile. RX 6 runs completely in your local computer, and processing time for these modules is similar to that of other processor-intense RX modules: a 45-second sample of exterior dialogue with street noises took about 21 seconds.

If you change the settings, it has to run the process again.

Audionamix’s TRAX Pro 3 is a single-purpose program with a lot more control than the iZotope module. When you open an audio clip, it sends compressed spectral data to Audionamix’s powerful servers via internet. The servers perform the separation and send resulting spectral data back to your computer. The program attempts to identify all the speech fundamentals automatically (heavy blue line in the screenshot). If some speech gets missed because it’s atypical or there’s too much competing noise, you can add your own identification (red line), helped by an automatic tracing tool. Consonants are a special case because of their high-frequency energy; any that get missed can be marked by the user. TRAX Pro 3 also has simpler versions: the interfaces are somewhat similar to iZotope’s Dialog Isolate, but their engine also relies on processing at Audionamix’s server. Our 45-second sample took about 34 seconds to separate. If you change the fundamental line, it has to run the process again.

We’ve posted short samples of exterior city dialogue, exterior dialogue in a busy woods, and concert hall performer dialogue with mixed audience reactions and simultaneous acoustic guitar strumming, in original production versions and processed through Audionamix and iZotope software, at http://cinemaaudiosociety.org/over-the-net/.

Acknowledgements.

Thanks to Audionamix’s lead researcher François Rigaud and iZotope principal DSP engineer Alexey Lukin for each spending more than an hour with me explaining their techniques, walking through their processing, and reviewing the manuscript. To DSP guru Dr. Barry Blesser, who gave me important insights into the network training process. And to re-recording mixer Stephen Fitzmaurice CAS, who walked through this neural network wonderland with me. Despite all their help, however, I take full blame for any inaccuracies or sloppy writing.

The audio samples are original production recordings from Tom Rush: No Regrets, courtesy of BlueStar Media and Ezzie Films, © Ezzie Films LLC and used by permission. Article text and illustrations © 2018 Jay Rose, except the drawing of a human neuron (derived from Jojo8 in Wikimedia Commons, and available under Creative Commons License).

To learn more about neural networks, and to try training one of your own with voice samples, you might try downloading University of Amsterdam’s free Praat software (Mac/Windows/Linux at www.praat.org). It’s a comprehensive tool for speech processing research, and comes with a very informative set of online and web-based help files.
IN THE STUDIO: 
AUDIONAMIX’S TRAX PRO 3 AND XTRAX STEMSTM

by Stephen Fitzmaurice CAS

I had the opportunity to check out the most recent version of the Audionamix software “TRAX Pro 3” and its newest colleague “XTRAX Stems.” Both utilize a form of machine learning called “neural networks” (described in depth in this issue in “Neutral Networks: A New Way to Think About Processing” by Jay Rose CAS).

While it’s a given that every show has its own set of challenges and opportunities, one of the recurring issues I wrestle with is integrating music: How can I better control the music so that it can help support the emotion of the scene without becoming distracting?

Getting mix stems is, of course, the first and best place to start. But stems may not be available, and stems sometimes bring as many problems with them as they solve. Commercially released songs often aren’t available with splits and, on those occasions when stems are available, they can lack the luster found in the original master. For better or worse, we often find ourselves attempting to gracefully weave the two-track master of a song into a story without the direct control of elements we might desire.

Audionamix has an interesting and, perhaps, unique approach that can help tackle this dilemma. The company’s TRAX Pro 3 and XTRAX Stems utilize remote servers loaded with neural network algorithms to analyze and separate the melodic content of a song or cue—or even dialogue—from the surrounding material.

In general, TRAX Pro 3 can separate the program into speech (e.g., vocal, dialogue) and “the rest,” while XTRAX Stems separate the file into drums, voice, and “music” (i.e., everything else). The idea being that you can then have greater control over these groups. For re-recording mixers, if we’re given a music track with vocals that has to play under dialogue, we have to find a way so the two don’t fight for frequencies. EQ-ing the vocal range of the music track when dialogue is present is a common approach. With this software, the ability to dip the lead vocal down under dialogue more independently is an attractive and worthwhile feature.

However, can you really unbake a cake? Well, no. Push too hard and you’ll definitely end up with distracting artifacts. I’ll admit, though, I was pleasantly surprised by my newfound ability to emphasize or reduce elements within a mixed track, and TRAX Pro 3 gives the user multiple levels of editing ability to increase the accuracy of the separation even further.

I’m always wary of relying on manufacturers’ demos, as they are often strategically chosen. If you’re curious, however, their website Audionamix.com includes a number of clips that show off the software’s capabilities, which are impressive—even if they are optimal examples. YouTube has a handful of videos demonstrating additional examples by “real” users and, as mentioned in the article, Jay has posted some examples as well.

I’ll continue digging deeper into the features, strengths, and weaknesses. But for now, I’m happy to report that I am regularly able to enjoy significant improvements in sound separation not always achievable with other technologies.
The Distant Sound of Barking Dogs

it begins with a home video, shot looking out the front windshield of a car driving down a city street, everything looking normal. A couple of cars ahead, a bomb explodes and, as the driver quickly reverses from the scene, pieces of asphalt, glass, and metal come raining down. This is how the documentary *The Distant Barking of Dogs* opens. It is the story of a family, a grandmother and her 8-year-old grandson Oleg, living in the little village of Hnutove in the Ukraine. They are caught in the middle of a war going on between the government and the pro-Russian separatists. Their lives are beautifully chronicled by the filmmaker Simon Lereng Wilmont, and recently won an award at IDFA, International Film Festival Amsterdam, documentary film festival in the world. I had a part of this film while visiting my good Foley artist, Heikki Kossi, in Finland. Heikki did the final mix in Copenhagen, Denmark, interview them both.
Can you tell me a bit about your background? How did you get started in sound?

Peter Albrechtsen: I am a sound designer and re-recording mixer based in Copenhagen. I’ve been working on fiction films, documentaries and many Danish and international movies since graduating from The Danish Film School in 2001. At the school, I learned you could approach the sound for documentaries just as creatively as in a fiction film—it’s all about telling stories with sound—and I find it really inspiring to go back-and-forth between the two.

Heikki Kossi: I’ve been working on sound in films since 2000. I studied sound design for radio and television in Turku, Finland, and spent many years as a professional musician. I love music still, but did not like long trips in a van and lots of hotel rooms! I feel that a song has drama and a story to tell and so does film. Working with sound opened me up to a whole new world. I worked as a boom operator, sound editor, sound designer and ended up working as a Foley artist, although, in the past year, I have been doing more sound design work.

How did you get involved with this project?

PA: The director Simon Lereng Wilmont did two short documentaries before this project and I was involved in both of them, one as a sound designer and one as a sound consultant. It’s such a pleasure working with Simon, as he’s really open for exploring what sound can do. His movies are very focused on atmosphere and have a very special, fragile sensitivity. This really opens [them] up for sonic possibilities, as sound is such an emotional and evocative medium. At the same time, this film was a Danish-Finnish co-production, so it was also a wonderful chance to work with two great Finnish colleagues and friends, Heikki and Pietu Korhonen, whom I’ve collaborated with on many, many films—Heikki is the Foley artist on all movies I work on.

HK: I got to know the director through his previous film Chikara (aka Chikara - Sumobryderens Søn, 2013) which
“"I can’t do sound without having faders… It’s a way of making things more musical."" - Peter Albrechtsen
I collaborated with Peter. With Chikara, my role was that of a Foley artist. (Since then), I’ve been working with Peter more and more and we’ve been talking about doing sound design one day together. Our normal collaboration is as a Foley artist and mixer/designer, but I feel our approach to sound is very similar. Everybody was very happy about the sound of Chikara and it was obvious from the very beginning that we should work together as supervising sound editors for The Distant Barking of Dogs. And my partner at H5 Film Sound, Pietu Korhonen, was an additional sound editor. We had true collaboration and lots of ideas to work with. And in the end, Peter and I mixed this movie together.

**How was it working with Simon?**  
It was his first feature length documentary. Was he very involved with sound?

**PA:** Simon really wanted the sound to be a major part of his film. Even the title of the film is about sound, about listening. When I played him a first pass of ambiences for the film early on, his first reaction was: I want more! Simon really wanted the extraordinary environment of the film to come alive through sound, both with background ambiences and Foley. Simon is his own photographer—and a very skilled one! You can feel how he really uses both his eyes and ears when portraying the characters in the film. And on top of that, of course, the whole film is happening in a war zone but you never really see any acts of war—the bombings are all happening off screen and are a very important part of the film. Usually, Simon isn’t super specific when he talks about sound—he talks about the moods and vibe he’s looking for and then he wants you as a sound designer or mixer to bring suggestions and ideas. But the sounds of the bombs were very important to him and definitely the part of the soundtrack he was most specific about: the timing of bombs, the speed of gunfire, the amount of echo or reverb, the texture of the explosions. Heikki arranged for special military recordings of bombs and guns in Finland and we used those sounds extensively.

**HK:** Simon’s work is amazing. I’m still amazed how he created the atmosphere of The Distant Barking of Dogs. It is intense and intimate. He is great with kids as well. His camerawork is astonishing. As a Foley artist, I feel that his cinematographing creates so much delicious Foley moments. He is able to get so close to the main characters, so those little details are very important to add with sound, too. With documentary sound, you quite often miss those things. Talking with Simon about sound was perfect. He told us about his feelings and motives, picking the best scenes for the movie for building sound. He didn’t talk at all about sound from a technical point of view; he was talking about the feelings and atmosphere he was looking for. That meant that he trusted us—an ideal situation. My point of view for the sound design process comes through Foley and I really feel that Simon is keen on that approach and respects my work because of that.

**Sound was so important in this film to establish the mood of a deserted village in the midst of war and to emphasize the isolation of this family. How was that accomplished and what were the difficult challenges for you to create this?**

**PA:** As mentioned previously, Simon really wanted the ambiences to be a big part of the film. There’s very little human life in this desolate city but there’s still a lot of animals, birds, insects, chickens, cows and, of course, dogs. It really gives a special feeling having all this animal life represented on the soundtrack, but not really any human life. It creates a ghostly feeling. It’s not lifeless, but it’s awkward for sure. And then there are all the different buildings falling apart with things rattling in the wind constantly. I vividly remember Simon telling us that everything should be creaking in this film. Everything. And, so it did!

Generally, the production sound of the film was very rough around the edges. Simon did it all himself while he was shooting and directing and it all was recorded with a camera mic and a couple of radio mics. Cleaning that up and making that work was really the most difficult part of the job—big kudos to Pietu Korhonen and dialogue premixer Nicolai Linck. But the creaky sound design and the rough production worked well when going hand in hand. The ambiences and sound FX made the dialogue seem warmer and richer. It’s amazing how your ears can be cheated. I love it.

**HK:** There were a few main themes we talked about in the very beginning. The village where Oleg and his grandma are living is like a ghost town and abandoned because of the war. So, everything needs to sound like that. Broken, not used, not taken care of. This texture needs to be possible to almost touch. No traffic can be heard. We need to hear that only animals are still in the village.
like the distant barking dogs. There are only three scenes where we actually see dogs. Another thing was the drama of war—when we hear it and how we hear it. Is it close or more distant? Who is shooting where? Every scene had its own drama. Simon’s description about the physical experience was really important, like feeling the bombing deep inside his body.

Heikki, you are mainly known for your Foley work, but I know you do much more. Can you talk about your work in sound design, editing, and mixing for this project?

HK: As I mentioned earlier, my approach to sound design comes through Foley. But even more, it comes through storytelling. My approach doing Foley is always related with the story, picture, and other sounds. I just want to help those elements. This time, it was possible for me to think about it from a different point of view. I was able to think more carefully about what was coming from Foley and what we needed from FX. Maybe the most important thing was that I was completely aware of the little details of production sound and the Foley. So, we were able to integrate Foley, the production track, and FX tightly together. Most of the sound editing was done by Pietu Korhonen and FX editor Mikkel Nielsen. At the same time, all three supervising editors, Peter, Pietu, and myself were able to inspire each other and follow the process before the mix. At the mix, it was just an adventure with Peter and Simon. With Peter, it was our first time mixing together and we didn’t have any disagreements. I think we were pretty efficient. We mixed everything together. When we started working with one sequence, I went through the dialogue and Foley. Peter took over with ambiences and the FX. Peter was also in charge of integrating music with other sounds. Also, Uno Halmarson and Erik Enocksson composed such amazing music for the movie.

Peter, we spoke during the mix about the different style of mixing you were using for this documentary—more like a feature film. Could you tell me a bit more about that?

PA: There’s certainly a lot of different views on how much manipulation you’re allowed to do with sound for a documentary. In my opinion, the director has chosen to point the camera in a specific direction and prioritize the material and edit the story in a certain way and this means that reality has already been severely manipulated. Why shouldn’t I be allowed to manipulate the sound, then? This doesn’t mean that I’m going to do a big action slam-bang soundtrack for a small quiet documentary. Of course, I spend a lot of time creating a sonic world that feels right for the film and true to the story, the environment, and the characters. I always utilize local recordings as much as possible and, on this film, we had access to a lot of Ukrainian ambiences. But at the same time, I often have several subjective sound moments in the documentaries I do. We all listen to the world in a subjective way so why should we try to be objective when telling stories? What is objectivity? No film is objective. It’s always a filmmaker’s personal vision. For this film, Heikki did a lot of Foley for each and every scene, but when you see the film, you hopefully won’t notice how much was created during post. It should feel natural. It should feel true. But the number of tracks we had, around 150 of them, was definitely more like a fiction film than a classic documentary.

What kind of equipment did you find valuable in using for this project? What kind of re-recording setup do you have at your studio?
PA: We mixed in 5.1 on an S6 console at the sound studio Mainstream, which is based at Lars von Trier’s production company, Zentropa.

I like to do quite a lot of work in the box, and we worked in Pro Tools. However, I can’t do sound without having faders. I played the piano for many years and I love playing the sounds with my fingers. For me, it’s a way of making things more musical. I like having small fader movements all the time to make the soundscape come more alive. Having the same sound play at one set level can become very monotonous quickly, but having just small changes in level for backgrounds or music make the ear much more interested in what’s happening. One thing I loved about the S6 on this project was using the finger touch for panning during the more abstract sequences; moving several elements around with the tip of my fingers made the movement of sound more musical, in a way.

This movie was very much about finding the right sound and not so much about manipulating, processing, and making big flashy sound design effects. If I should highlight one plugin I really used a lot in this film, then it’s a very, very basic plugin called TrueVerb. This contains a preset called “Drum Room” which, with tiny modifications, I use frequently for making Foley sound like it’s from location.

As any mixer will tell you, making sounds feel natural can be the biggest challenge. Of course, I also use much more advanced reverbs like Altiverb and other IR reverbs but TrueVerb has this lo-fi feeling that makes the sound feel very real—like it’s actually recorded in the room. That’s extremely important for a documentary like this. I then like to AudioSuite the sounds so that I have the actual sound file and a processed, reverbed sound file on top of each other. I can then pan them a little differently so it feels like there’s a reflection in the room and the sound doesn’t just come from one source.

It was a very enjoyable mix. We did about six weeks of sound editing and one week of mixing. It was a short schedule but we were able to work very effectively because we knew what we were aiming for from the very beginning.

HK: From my side, nothing special. Just Pro Tools. We used a D-Command console and S6 controllers with a relatively normal package of plugins. As Peter said, the final mix happened at Mainstream, Copenhagen. (mainstream.dk/mainstreamaps-uk.html)

I hope this film gets a wide distribution because it is a very moving portrait of a family in crisis, beautifully shot with a fantastic soundtrack. Many thanks to Peter and Heikki for their time and talent. And thanks to producers Monica Hållström (Denmark), Sami Jabrakainen (Finland), and Tobias Janson (Sweden) who made all this possible.
Blackmagic is a rapidly growing innovator and manufacturer of video technology. Offering products ranging from video codecs and capture cards to cameras and editing systems, they have a history of providing quality tools to our industry. Indeed, Blackmagic manufactures one of only two third-party video devices officially supported by Avid for use in Pro Tools workflows.

And in the fall of 2016, BMD acquired Fairlight Audio, showing a firm commitment to being in the pro audio business. Shortly thereafter, in the spring of 2017, for the extremely competitive price of $299, they released DaVinci Resolve 14 Studio. This new suite of tools claims to be “revolutionary,” hosting world-class tools for editing, color correction, and professional audio post-production “all in a single application.” While DaVinci Resolve is traditionally recognized as a color grading software, DaVinci Resolve 14 is now widely spreading to video editors. And with new Fairlight audio tools on the horizon, Blackmagic is poised to be a possible workflow disruptor in the audio world.
Here, President Dan May of Blackmagic tells us about the leading advantage of the new all-in-one DaVinci Resolve 14:

If you have multiple editors, colorists, and audio engineers working on one application at the same time, it saves time in the production process. When you’re no longer saying, “Well, I need to wait for X person to get done with this job, to hand it off to Y person, to then do their handoff to Z person,” you can have, basically, this real-time timeline where everyone is working together and completing projects at the same time. It’s a big step that’s never really been seen before in the production world, and we’re really excited about what it brings to the table.

Is the core demographic of this software whole facilities?

No, it has several levels of demographic. We’re saying, “Look, if you’re using Fairlight audio, maybe you should be thinking about editing and color grading in the same package.” And we’re also going into the larger post facilities and saying the same thing. We’re pointing out the workflow advantages you can have [by] staying in one piece of software.

For the individual just working on my individual film projects or a corporate gig, there is still one application that has all of these tools directly built into it. So, there is no reason to round trip, or move from application to application. You’re not having to have a subscription to the Cloud or a support contract. You’re paying your $300 and downloading your software, and you have all the tools at your fingertips. They’re the same tools the professionals across Hollywood, independent broadcasters, those large post facilities and production facilities have. That’s an incredibly powerful story we’re able to tell, kind of up and down the street.

But are you then looking to combine operators of audio and picture?

No, not at all. We are simply trying to expand the available toolset and keep the entire team on the same project. In audio, for example, the big clients traditionally use Fairlight panels that are being driven by software. We still support the original Fairlight software that they are accustomed to using, but what we’re doing now is using the audio page in Resolve. As far as the audio engineer is concerned, they’re still basically running this big Fairlight panel. Do they really care if it’s Resolve in the background? All they want is that big panel that’s driving all of it for them.

It becomes a big potential shakeup, providing these tools to all these artists. In post houses, colorists or editors
don’t have to learn new tools, but now all these people can work together at the same time.

That is thought-provoking. This level of software integration could really ease conforms across picture and sound.

From a support standpoint, conforming is where all the nightmares end up happening. So imagine being able to go from the editing to the color to the audio, across multiple workstations, and there’s no version differences or software issues, and when you’re done, you can export and that’s it!

Yes, there are big suites of software that exist out there, there’s interoperability, but you’ve still got to take it back to the edit software in order to make a change. Okay, now let’s send it to audio, and we have to wait for the audio to come back before we can move on.

You can see where the individual owner can say, “Hey, I’m going to buy this $299 software and get all these tools.” And you can see at a large post-production facility how much time they could save if they move to this software, just from a streamlining perspective.

So Blackmagic is manufacturing professional hi-end specific-function consoles?

Definitely. We are already making color-grading consoles, and we’re working on re-releasing the Fairlight audio console.

It’s important to note, though, that the console isn’t a requirement. What’s important is that the tool we call Resolve can work at many levels, based on your needs.

I would also assume that, just similar to Pro Tools, the software itself may be one price, but the interfaces and levels in which the software operates have multiple price points.

The $299 software is fully functional. The panels, whether for color or Fairlight audio, simply give you additional physical tools. Our color panels have been around for a while, and those high-end colorists at post houses around the industry use them extensively. For Fairlight, it took us about 12 months to bring the software into Resolve, but we are still working on rebuilding those Fairlight panels in the way we do here at Blackmagic. Those original Fairlight panels were about $40,000 per section, and could go upward of half a million dollars. Blackmagic wants to make our own version of those, which will come down in price.

This is the real tough part for Blackmagic. How do you build a $300 piece of software that makes the highest end professional happy, as well as someone that’s just coming out of film school? How do you make a $3,000 cinema camera that satisfies someone that operates an expensive cinema camera every day, but also is simple enough to be used for that high school student’s first film project? It’s a real trick to say these are professional Hollywood tools that we put out there but are accessible to everybody, both in price and ease of use.

Blackmagic manufactures one of two third-party-supported video cards for Avid Pro Tools. Are you going to continue to support that hardware?

Yes, we’ll always support workflows that utilize our hardware. We have diversified our product line to work with a wide range of solutions.

We work hard at having a world-class solution. We want to fill in all these gaps so that we have the ability to create an entire Blackmagic workflow, but by no means are we going to turn around and say once you’re in this bit, that this is the only way you have to work.

Where is Blackmagic in its progress to release Fairlight consoles that natively integrate with Resolve 14?

What we’ve done is, we’ve basically stopped production on the old Fairlight hardware panels. We’ve been really engaged with existing Fairlight audio customers over the last year to get the software right. We’ll continue to work with the Fairlight audio software interface that customers are comfortable with, but we also made those existing panels work with DaVinci Resolve 14. So existing users can comfortably use their hardware, which allows us to put Resolve 14’s audio through its paces. In the meantime, we are redesigning those hardware panels so that we can put them back out on the market.

And there is a downloadable trial version available of the software today?

There is a free version, but it isn’t a trial or heavily limited version. The free version basically has 95 percent of the features of Resolve Studio. Largely what is missing in the free version is the creative enterprise level stuff, where you’d have multiple users on the same system. Those higher end features are stripped out, but it’s a really robust free version. We did that because we want people to use the application and try it out in a real way.
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There are several reasons why a sound professional would want to be organized. It often starts with spring cleaning to an appreciation for the visual aesthetic. Then it morphs into pride in the accomplishment and then pride in one’s tools. Then we begin realizing it’s a great way to be maintaining your hard-earned inventory. But the biggest reason of all should be to encourage and reinforce efficiency. We have to move fast these days and the organization of our tools and accessories is essential to how fast we deploy and adapt to our production environment.

Getting started can be like opening a can of worms in order to then better contain these released worms. It can lead you down a path of searching for new ways to organize your equipment, as well as moving toward full custom organization of your equipment.

I have many colleagues whom I respect and admire. Over the years, we have traded photos of each other’s organizational efforts and kit implementations. Inspiration, imitation, and imagination have always ensued. As creative as I like to be on my own, here we also include Amanda Beggs CAS and Danny Maurer for their organization perspective and innovation.

FOLLOW CARTS

After sharing progress photos back-and-forth with Amanda Beggs and then seeing her cart setups with my own eyes at the Mix’s “Sound for Film” event at the Production Sound Pavilion at Sony, I wanted to reach out and gather her insights and photos to put on display here.

She walks us through her system: “I use a Magliner Mini...”
Cart with a Husky brand tool chest mounted on the bottom shelf. The chest was a perfect fit for the cart and, until I go for a full custom-built support cart, tool chests are a great way to incorporate drawers without spending as much on rack-mounted drawers from brands like Mid-Atlantic. I added the top half shelf for added workspace. It’s come in handy, as I quickly filled up my drawers and still had gear without a home, so I use plastic containers (usually from The Container Store) that I affix Velcro to and then mount the containers in places that are easy to access, but off the main workspace.

“I’ve got all my wireless transmitter clips, as well as spare thumbscrews and Allen keys in the case on the left-side panel of the upper shelf. My label maker is Velcro’d underneath that same upper shelf, and I keep all my go-to mic accessories (super stick, overcovers, RM-11s, Joe’s Sticky, lav bullet, etc.) in that large tackle box container up top. Because everything is Velcro’d in place, my utility can grab the box and quickly head to set without needing to fish around in any drawers. I also have a container just for fresh batteries on the main work shelf. This keeps them close at hand and saves time, negating the need to pull out the box from the drawer or deal with any packaging.”

One of the more difficult to organize portions of our packages is the lavaliere microphone accessories kit. There is such a variety of small items to keep track of and keep accessible. I really love what Amanda has put together here; it’s portable and powerful:

MIC ACCESSORIES: “The contents change depending on who my utility is for each show I’m on. I let each utility put their go-to items in there and change up the arrangement for what works for them. We’ve found it to be very convenient just having one main thing to grab that contains all the possible mounts, tapes, etc., when you’re asked to wire away from the cart or tweak a wire out on set.”

THE CONTAINER STORE

The Container Store is a heavenly place for someone looking to organize anything. It doesn’t have to be crazy-expensive either. There is a giant range of container brands and styles that work for anyone. The main challenge when putting together my lavaliere accessory drawer was how to fit every little bit in a two-space Middle Atlantic drawer.

The second challenge is needing to do this, basically, from memory. As this was setting myself up for failure, I dumped out all of my lavalières and accessories onto my workbench and took a reference photo. I headed to The Container Store and started browsing.

This is what I meant by opening a can of worms. One container led to one idea, and evolved. Then a different container kit reset my trajectory all over again until I landed on this: Stackable blocks to organize tape, wind protection, mic pack
clips, and clear plastic snap containers for the lavaliere mics. I placed one lavaliere per labeled container to avoid the need to rubber band the mics for tangle management. It’s almost like a filling system for lavaliere mics.

This organizational effort was a combination of good planning and happy accidents (but mostly happy accidents), and has been in constant service for more than three years unchanged from this original arrangement (give or take an accessory or two).

MYCASEBUILDER.COM

I wanted a way to shave time from prep and wrap each day. Custom laser-cut foam provides a way to keep certain pieces of gear built, yet keeps them protected as if they were in their original case. In order to create these inserts for all of my equipment drawers, I imagined loading up my follow cart, driving to some road case builder in the Valley, and sitting down with a probably already super-busy case fabricator. We would try and measure and double measure every single wireless mic pack, boom microphone, IFB receiver, and accessory in my inventory. We would need to design the orientation, depth, usable space, and how it all ties together in the three-dimensional space available. When considering all of that, I really started to doubt its feasibility.

I began calling around town for options. Phillip Palmer CAS told me about a website called MyCaseBuilder.com. This changed everything! It was actually doable and I could make it however I wanted, and on my own time!

After several days of deliberation, I settled on these three designs for my wireless transmitter drawer, my boom mic drawer, and my IFB drawer. I recommend always sleeping on it before hitting send on
An afterthought, like a notch for the drawer latch, will almost always occur.

Danny Maurer’s creativity and industrious nature has been noticed by many production sound mixers. He’s helped out myself, Caleb Mose, Mark Ulano CAS, and others in creating custom laser-cut foam inserts for our drawers and cases. He provided several of Caleb Mose’s case inserts for this article. He expands on the benefits of laser-cut foam: “The more that you can logically organize and thoughtfully pack your gear, the quicker you can find things and the easier it can be to put everything back. The adage of measure twice, cut once [is] strong at play here. What looks like it might cost hundreds of dollars and require dozens of cuts, re-cuts and measure revisions can be done affordably with careful attention to detail. A set of digital calipers doesn’t hurt either.”

Amanda Beggs counters with an alternative. “While I envy Devendra’s laser-cut foam, I’ve been buying and upgrading gear fairly frequently over the past few years, so I wasn’t ready to commit to the foam just yet. For wireless transmitters, I did put down a thin foam layer in this drawer to protect the TX from scratching or sliding around. Luckily, I’ve ‘Tetris’d’ my TX and own just enough that it’s a perfect, tight fit and they don’t really move around in transit. Every single TX is numbered and has its corresponding number labeled on my [Lectrosonics] Venues and mix board as well.”

Another thoughtful feature of this website is you can buy an insurance policy for about $8 that allows you to make tweaks and reorder your foam set after you’ve received it if it has incorrect measurements or mistakes of any kind.
MIC DRAWER: “The dividers/sections for each mic are simply plastic drawer organizers made for desks and/or kitchen utensils. They are a nice soft plastic that protects and separates the mics and, because they are modular, I can simply move them around and rearrange them as my gear collection grows. They have little foam feet so they don’t slide around. They also help me corral smaller items like my Ambient QuikLoks, Allen key, and shockmount rubber bands. I keep my lavs in zippered pouches intended for DSLR camera filters (the black-and-red case on the left side of the drawer). Each lav gets its own mesh pouch and the case zips shut. Each case holds anywhere from six to eight lavs—I use two cases to hold all of mine. They protect the mics, as well as allow you to simply take one of each color with you if you have to wire up someone and don’t know yet what color is needed. I actually borrowed this idea from a friend and fellow mixer who works mainly in reality TV, Marcos Contreras. Because he doesn’t get to use a cart to manage and organize all of his gear, he has to think of more mobile ideas and, honestly, those ideas are great for work on narrative sets as well.”

COMTEK DRAWER: “You’ll notice some Container Store dividers here as well! My single-ear headphones and all of my straps, Coban, and pouches are kept in place by the same desk organizers. And it’s nothing new, but I use the poor man’s alternative to fancy laser-cut foam—repurposing old pick-and-pluck foam from Pelican cases! I saved all my foam from my various Pelican cases over the years and now I use it to create ‘custom’ foam inserts for my drawers. It’s been great for me because as I add to my collection of Comteks, I can simply adjust the size of the foam insert by removing more sections or just starting over with fresh foam.”

WHEN IT’S NOT JUST ABOUT SOUND

The sound cart is in a unique geographical position in relation to the set. (Basically, it’s ideally in the most-convenient-yet out-of-the-way place.) This makes for the perfect spot for charging the company’s electronic devices. While I don’t feel obligated to provide the crew, cast, or producers with convenient charging, I just think it’s a nice thing to do. This is Amanda’s thoughts on the matter. “Cellphone charging is a very important addition to any follow/support cart. It is a place for everyone to charge their phone. But I wanted there to be a level of organization to this spot, as my utility and boom operator still need to use this cart as their workstation. And if it’s a jumble of charging cables and random phones, that’s no good. I found a nice bamboo phone/tablet charging station on Amazon and secured it with Velcro. One of my ingenious utilities, Tommy Giordano, added foot foam to the sections so phones don’t slide out when we move the cart. And I simply use a large binder clip to keep all the cables up and out of the way when they’re not in use.”

Amanda sums up the logic behind being motivated to get organized. “I like organizing my cart and finding new ways to make things easier for myself and my team when we’re working. If everything has a place that makes sense and fits, then things are more likely to always find their way back to those spots and we won’t be scrambling to find something when we need it next. I am all about repurposing things and hunting for items that do the job I need them to, even if it’s not from an industry-specific vendor. I have found so many useful items at The Container Store, Fry’s, Daiso (a Japanese dollar store), and Amazon. I also truly believe that, in this context, imitation is a form of flattery. I’ve gotten some great ideas from fellow mixers and have either implemented their methods or found a way to incorporate their ideas. And I gladly share my methods and sources when people ask, knowing that they might be able to improve upon my ideas!”
WHAT ABOUT BAGS?

Like Amanda mentioned about Marcos Contreras, follow carts are not always an available or practical option for organizing some production sound mixers’ equipment. Often, portable run-bags are deployed for the recording package and the accessory package. Working with Danny Maurer has taught me a lot about a different, yet more common sector of production sound where this lighter, portable option is the norm. He reflects, “In our industry, a lot can happen in a moment’s notice. A scene that was previously MOS is now full of ad-lib lines. A scene that was supposed to take place outside the car now takes place inside a moving one and ‘we’re going to add the entire ensemble to this scene’—everything and anything can change. So, as team members in this collaborative tango, we strive to accommodate the shot, whatever it may take. This obsession of always being as prepared as possible for anything that comes our way leads us to acquiring a myriad of different tools and techniques to tackle any problem. Having all these tools and tricks up our sleeve is useless unless we are able to deploy them quickly and efficiently without breaking a sweat in front of our teammates. In my workflow, whether it be working with my equipment or working utility for someone else, I’m always searching for places to shave off seconds.”

His K-Tek Stingray Junior bag is like no other I have ever seen. It may look similar to others’ bags, but a closer look inside reveals subtle differences and many unconventional utilizations of components. This bag and his custom-made apple box are the centerpieces of his organized operation.

MY BAG: “The examples here outline a flexibility shortcoming that I identified with the [Sound Devices] 633. When working with larger numbers of ensembles, sometimes transmitters need to hop around from person to person. In an effort to keep track names consistent with receiving channels, I’ve built a patchbay that converts all inputs to TA3. This allows all the inputs to be interchangeable and implements an overall uniform I/O workflow to the bag.”

MY APPLE BOX: “This design was a collaborative endeavor with sound mixer Jonathan Lallouz. We were striving to make the most versatile on-set utility box. At the time, I was doing a lot of utility work where, not only would I need a place to land my boom on set, but I would also need to have tape rolls, lav boxes, two or three different types of spare batteries, spare lavs and transmitters, spare Comteks and headphones and a different type or two of mics to switch out. Having all of these tools quickly on hand and easily accessible was an enormous help on a number of different features over the summer and saved countless trips back to the follow cart.”

CONCLUSION

Organization comes out of necessity for efficiency, as well as sometimes for sanity. All of our little sound bits need a safe home that allows them to play every day in a variety of environments. I hope this article’s words and images encourage other members of the sound community to shape their own organization. You have a lot of options in front of you and if this can nudge your imagination in the direction of accomplishing your organizational bliss, then I am pleased. Enjoy your trips to The Container Store.

Thank you Amanda Beggs and Danny Maurer for your insight and photographs. I admire you both so much and am open to borrowing and sharing ideas anytime!
Los Angeles native Cecilia Perna had a long career in the industry, having started as an intern for a music studio at 17. A pioneering woman in our industry, she went on to be a highly regarded Foley/ADR mixer. Cecilia worked for many companies, including Horta Editorial, West Productions, RH Factor, Westwind Media, Wildtracks, and many others. Her career included work for many of the David Kelley shows. Recently, she was contributing on Nashville, Mozart in the Jungle, Goliath, and Santa Clarita Diet. Cecilia was well-known and respected for her professionalism under pressure. When things got nuts, she would often burst into laughter encouraging positivity and productivity. She never complained and always had a positive spin on any situation. She was a fan of spontaneous road trips with her husband Peter and their friends and led a full and colorful life. Cecilia will be greatly missed by the community.
2017 has been a busy year for **Scott D. Smith** CAS and his crew, Jason Johnston (boom) and **Michael Capulli** CAS (utility), with able assistance from Corey Cappelli and Kelsey Zeigler. Directly on the heels of Season 4 of *Chicago P.D.* for NBC/Universal, Scott and the crew began production of *Widows for New Regency*, directed by Steve McQueen (*Twelve Years a Slave*), with a cast including Viola Davis, Liam Neeson, Colin Farrell, and Robert Duvall. It was a pleasant change of pace to work on a movie shot primarily single camera on film—almost forgot what it was like. With no time for a break in-between, shooting resumed for Season 5 of *Chicago P.D.* in mid-July. Looking to some well-deserved time off next May!

**Tom Marks** CAS and Greg Orloff have been mixing James McTeigue’s latest film for Universal Pictures, *Breaking In*, at Sony in the Cary Grant Theater.

**Chris Durfy** CAS is staying busy in London mixing the Netflix prequels for *The Dark Crystal: Age of Resistance* until mid-August 2018. You’d never think a Jim Henson Company “puppet show” would be the most complex job of his career to date! Up to 12 life-size characters per scene—each puppet operated by a trio of puppeteers—each needing their own communication line—and each with their own mix minus! Let the good times roll!

Having delivered AT&T’s *Mr. Mercedes* and the final season of *Halt and Catch Fire* for AMC, **Keith Rogers** CAS (fresh off his Emmy win for *Westworld Season 1*) and **Andy King** CAS recently completed mixing the Netflix sci-fi thriller *Altered Carbon* in Dolby Atmos at South Lake Audio. They’re currently mixing Season 2 of NBC’s *Taken* between South Lake Audio Stage A and Deluxe’s Seward Stage 5. The team will begin *Westworld* Season 2 this March at Universal which will also be mixed in Dolby Atmos.

**Philip Perkins** CAS completed mixes for the A+E series *The Menendez Murders: Erik Speaks* and mixed the doc features *Joey and the Leitis* and *Healing Justice* for PBS.

It seems like it’s been a while since **Robert Sharman** CAS has checked in, and a lot has happened! He has moved back to Los Angeles and wants to thank Kenny Mantlo, Pud Cusak, **Phil Palmer** CAS, **Julian Howarth** CAS, **Geoff Patterson** CAS, and **Roger Stevenson** CAS for sending some days of work his way. He mixed a little horror film last summer with good friend and longtime boom operator **Richard Bullock** CAS, on which they teamed up with Kelly Lewis for utility. They all recently reunited for reshoots and additional photography for that movie, as well as the same for *The Nun*. He is hopeful that 2018 will be a great year, and is looking forward to reestablishing old relationships and building new ones.

**Sherry Klein** CAS and Scott Weber have just completed Season 2 of *The Exorcist* on Smart Post Stage 5 in Burbank. They are also mixing the first season of *Reverie* for NBC and will be picking up Season 4 of Lifetime series *Unreal* in January.

**Frank Morrone** CAS and **Colette Dahanne** CAS are mixing *Criminal Minds, On My Block*, and *Unsolved* at Technicolor Burbank.

**Charles R. Hunt** CAS finishing 2017 completing production mix of Netflix *Luke Cage* Season 2, as well as Season 1 of Netflix *The Punisher* & Amazon’s *The Big Sick*.

**Karol Urban** CAS MPSE and Ross Davis mixed a pilot for Freeform called *Now and Then*, finished the first half of ABC’s Season 14 of *Grey’s Anatomy*, and have just begun mixing Season 7 of Fox’s *New Girl*.

At NBC Universal: Mix team **Jon Taylor** CAS and Frank Montañó just wrapped *Fifty Shades Freed* on the Hitchcock for director James Foley and picture editor Debra Neil-Fisher. The team is now final mixing *Pacific Rim: Uprising* for Legendary Entertainment.

**Mike Minkler** CAS is doing the dts:X mix on the original title *Mamma Mia!* for Universal Home Video. Mike will be back in April, with sound supervisor/mixer Warren Shaw to mix the upcoming Universal feature *Mamma Mia! Here We Go Again* on Mix 6 with producer Gary Goetzman.

**Dan Lehay** CAS and **Steve Pederson** CAS wrapped up the first season of *Counterpart* in Mix 2 for Starz Entertainment before diving in to mixing duties on Amazon’s Tom Clancy’s *Jack Ryan*.

**Mark Fleming** CAS and **Myron Nettlinga** CAS keeping the fathers flying on *Kevin Saves the World* for ABC Television, *12 Monkeys and Impulse* for NBC, and last but never least, the fifth season of Marvel’s *Agents of S.H.I.E.L.D.*

Re-recording TV mixers **Jon Cook** CAS and **Bill Freesh** CAS finished up Season 3 of *Mr. Robot* before kicking off the new year with *Falling Water* and *Superstore* for NBC, and Life Sentence for the CW Network.

Mix team **Nello Torri** CAS and **Alan Decker** CAS on Studio B mixing the first seasons of *The Brave* and *Good Girls* for NBC. The team will start mixing the seventh season of *Homeland* for the Showtime Network next month.

Pete Reale and **Todd Morrissey** CAS mixing *Chicago Fire* and *Chicago P.D.* for producer Dick Wolf and will start on the mix for *Suits* in the next week.
Chris Durfy CAS had loads of water work for my 1st and 2nd assistants Andy Thomas and Michael Sinden while filming in London for *Swimming With Men*, starring Rob Brydon and an ensemble cast of British actors. The “Sound Noodle” in the foreground was used to house our hydrophone cable and acted as a sound insulator.

On Sun., Oct. 22, CAS Associate Allen Williams hosted a Master Boom Operator panel in Atlanta, GA. Pictured left to right, back: Chris Isaac, Freddy Chancellor, Todd Russell, Robert Maxfield, and CAS Associate Kevin Cerchiai. Front: CAS Associate Allen Williams, Kurt Peterson, Dave Roberts, and Mike Schmidt.

Boom operator Jerry (Niru) Cox, Ray Romano, sound mixer Charles R. Hunt CAS, utility Paul Reed finishing *The Big Sick*.

Matt Foglia CAS spending some time between semesters installing a 32 fader Avid S6 in the Audio Post Lab at Middle Tennessee State University where he is a professor.
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