

deadmau5

TEACHES ELECTRONIC MUSIC PRODUCTION



MASTERCLASS

“

You have to think that if you can impact one person with your music, then it's pretty much worth it.

— deadmau5

”

A FEW FACTS ABOUT DEADMAU5

- ▶ Joel Zimmerman was born on January 5th, 1981 in Niagara Falls, Ontario.
- ▶ Joel started composing electronic music with the program "Impulse Tracker," inspired largely by video game soundtracks.
- ▶ Joel created the alias deadmau5, and released his first full length album *Get Scraped* in 2005.
- ▶ Deadmau5 is the first EDM artist to be featured on the cover of *Rolling Stone* magazine.
- ▶ Deadmau5 has 3 Juno awards, 6 Grammy nominations, and 3 Billboard Dance Chart #1 hits.
- ▶ Deadmau5 has headlined Lollapalooza, Outside Lands, Sonar, Ultra, Electric Daisy Carnival, and Bonnaroo music festivals.



HOW TO USE THIS CLASS

Before you dive in, we have a few recommendations for getting the most out of your experience.

THINGS YOU MIGHT NEED

To enjoy this class, you only need your computer and a desire to learn. However, here are a few other items we think will enhance your learning experience:



A

CLASS WORKBOOK

This printable PDF filled with lesson recaps and assignments.

B

SUGGESTED VIEWING SCHEDULE

Deadmau5 explains his techniques to you in 23 lessons. It's tempting to finish all of the lessons in one sitting. We'd like to recommend our suggested viewing schedule, which you'll find on page 5 of this Class Workbook.

C

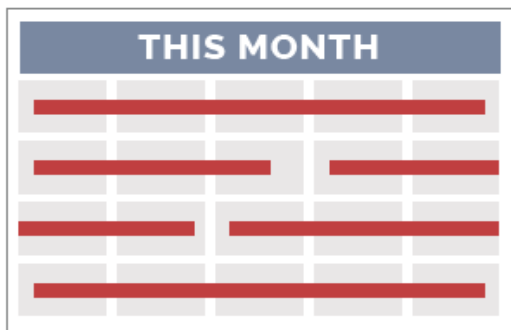
DEADMAU5'S MUSIC

A few of deadmau5's songs are mentioned repeatedly in the class: "Snowcone", "Imaginary Friends", "Phantoms Can't Hang", "Cat Thruster" and "No Problem". Have Spotify or a streaming application handy to be able to listen to songs and albums mentioned in the class.

D

WRITING MATERIALS

You'll want to keep writing materials handy, both for taking notes while going through the class and for completing several of the assignments.



CLASS RESOURCES

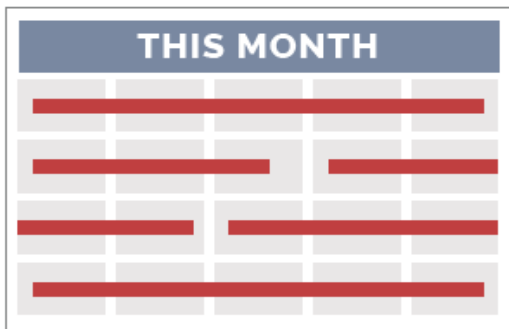
To get the most out of these lessons, you should be familiar with the basics of recording and processing audio on your computer. If you already have those skills and can produce tracks of your own, you should be ready to go. If you feel like you need to get up to speed or brush up on some core concepts, go through our [Fundamentals Guide](#), which you can find in the Resource Section.



E

DIGITAL AUDIO WORKSTATION

Joel will talk more about studio gear in Chapter 4, but to get started, you will want a piece of software that lets you put Joel's lessons to work and produce your own tracks. Joel's techniques will apply to any DAW. If you don't already have one of your own, we'd recommend downloading the demo version of the DAW Joel uses in the class, [Ableton Live](#).



THINGS YOU WILL SEE

Here are a few general tips for navigating your way around the class site:



LESSON VIDEOS

Watch and listen to deadmau5 explain the nuts and bolts of his process



INTERACTIVE ASSIGNMENTS

Take advantage of the innovative tools and interactive assignments we've created to enhance your education.



LESSON DISCUSSIONS

Share your works in progress and ask your peers for help and support if you've hit a roadblock.



OFFICE HOURS

Submit and watch video and text questions for deadmau5 from the MasterClass community.



COMMUNITY

Continue connecting with your MasterClass peers with our community features.



QUESTIONS & FEEDBACK

We want to hear from you!
Email support@masterclass.com

CLASS OUTLINE - SUGGESTED VIEWING SCHEDULE

WEEK 1

01 INTRODUCTION

02 THE DEADMAU5 PROCESS: THEORY

- ▶ Find a Way to Stop Thinking
- ▶ You Don't Have to Feel It to Write It
- ▶ Experimentation not Inspiration
- ▶ Building Your Mister Potato Head Bin
- ▶ 23 Seconds is a Track
- ▶ Every Producer Copies, Good Producers Copy in New Ways
- ▶ You Don't Have to be a Team Player
- ▶ Doubts and Mistakes Make you Better
- ▶ Nothing's Ever Really Done

03 THE DEADMAU5 PROCESS: PRACTICE

- ▶ Starting A Track From Scratch

04 BUILDING YOUR HOME STUDIO

- ▶ Everything Ends Up Digital
- ▶ Your Computer Setup
- ▶ DAWs
- ▶ Hardware Can Come Later
- ▶ No Headphones
- ▶ Studio Monitors
- ▶ It's About Your Ideas Not Your Gear

WEEK 2

05 DEVELOPING MELODIC STRUCTURES

- ▶ Resolving
- ▶ Writing a Melody
- ▶ Drone Notes
- ▶ Don't Be Obvious

06 TURNING MELODIES INTO ARRANGEMENTS

- ▶ Bass Lines
- ▶ Lead Lines
- ▶ Case Study: Cat Thruster

07 INTRODUCTION TO SYNTHESIZED SOUNDS

- ▶ We're Here to Create Sounds No One's Ever Heard
- ▶ Synth Basics: Waveforms and Filters
- ▶ Using Envelops and LFOs to Modulate Sound

08 EXPERIMENTING WITH MODULAR SYNTHS

- ▶ Cross Modulating Simple Waves
- ▶ Using Envelopes To Automate
- ▶ Adding Effects
- ▶ Playing Sequenced Notes
- ▶ Putting Mod Synths in Your Tracks
- ▶ Start Experimenting

WEEK 3

09 DIGITAL VS. ANALOG SYNTHS

- ▶ Hearing the Digital Analog Difference
- ▶ Digital vs. Analog Cross Modulation
- ▶ Synths in Snowcone

10 SHAPING SOUNDS WITH EFFECTS AND PROCESSING

- ▶ Think Outside the Preset Box
- ▶ Use Effects to Create Original Sounds
- ▶ The Secret to Fat Bass
- ▶ Reverbs
- ▶ Adding Spaces and Depth
- ▶ Processing Shit Into Gold

11 BEATS: PART 1

- ▶ Dance Beats Should Be for Everybody
- ▶ There's No Such Thing as a Bad Drum Sample
- ▶ Building Your Kick Sound
- ▶ Watch Out for Phase Cancellation
- ▶ Balancing Drums and Melody

12 BEATS: PART 2

- ▶ The Secret to Snare Sounds
- ▶ Making Your Drums Breathe
- ▶ Case Study: Snowcone Drums

WEEK 4

13 STRUCTURING SONGS

- ▶ Copy, Copy, Add and Subtract
- ▶ Find the Right Track Length
- ▶ Think Ahead to Your Live Set
- ▶ There's More to Music Than Big Drops

14 REMIXES

- ▶ Don't Remix, Rework
- ▶ Choosing Remix Material
- ▶ What Starts as a Remix...Can End as Your Own Track
- ▶ Guide to Remixing deadmau5
- ▶ Starting Your Own deadmau5 Remix

15 MIXING

- ▶ Tracks and Groups
- ▶ Earballing
- ▶ EQing for Clarity
- ▶ Getting Your Leads to Sit in the Track
- ▶ Shaping Your Bass
- ▶ LFO Tool vs. Compression
- ▶ Mixing in Home Studio

16 MASTERING

- ▶ Mastering Yourself
- ▶ Mastering Basics
- ▶ Limiting
- ▶ No Magic Master Chain
- ▶ Loudness vs. Perceived Loudness
- ▶ Getting Feedback on Your Mix

WEEK 5

17 MASTERING CASE STUDY: SNOWCONE

- ▶ Comparing Different Master Chains
- ▶ Parametric EQing
- ▶ Keep an Eye on Signal Path

18 STARTING YOUR PRODUCING CAREER

- ▶ Labels are Looking for the Total Package
- ▶ The Truth About Getting Signed
- ▶ Invest in Yourself
- ▶ Making Music Your Full Time Job
- ▶ Define Your Brand
- ▶ The Secret to Selling Yourself: Don't

19 UNDERSTANDING THE MUSIC BUSINESS

- ▶ Learn the System and Make It Work For You
- ▶ The Problems With Major Labels
- ▶ Building Your Team
- ▶ The Online Marketplace
- ▶ An Approach to Making Albums
- ▶ Don't Stress Over Titles

20 ON STAGE: THE MUSIC

- ▶ Programming Shows
- ▶ Playing the DAW
- ▶ Crafting Your Set List
- ▶ Openings and Endings Matter Most

WEEK 6

21 ON STAGE: THE TECHNICAL SIDE

- ▶ A Show, B Show
- ▶ Rehearse Every Aspect of Your Show
- ▶ What's in the Cube
- ▶ Learn Your Systems
- ▶ Keeping Your Equipment Running
- ▶ Keep it Cool

22 ON STAGE: THE SHOW

- ▶ Forget the Crowd
- ▶ Don't Be Like a Saw Movie
- ▶ Putting on a Show
- ▶ Another Day at the Office
- ▶ Feeling Comfortable on Stage

23 CLOSING

“

90% of my time is just goofing around, trying to come up with something. — *deadmau5*

”

CHAPTER RECAP

You don't need to be a formally trained musician to make EDM, but you do need to develop a process. For Joel, music-making is all about experimentation: playing around with melodies, sounds, and structures until he hears something he likes. Try to keep yourself from being too critical of new ideas as they're taking shape and start saving clips of ideas you like, even if you're not sure yet how to make them work in a song.

Don't worry about cranking out fully realized arrangements. For now, focus on making eight bar loops that you love. That's how every great deadmau5 track got started. (You'll learn more about structuring your loops into songs later in the class.)

It can also help to borrow musical ideas from your favorite artists and find ways to make them your own. Joel says the classic deadmau5 sound was born when he put dark Nine Inch Nails-style chords together with pulsing house drum beats.

TAKE IT FURTHER

- ▶ Listen to some of the classic Nine Inch Nails records that inspired Joel like:
 - ▼ *Pretty Hate Machine*
 - ▼ *The Downward Spiral*
- ▶ Can you hear the musical ideas that helped shape early deadmau5 tracks like "Faxing Berlin"?

SUBCHAPTERS

- ▶ Find a Way to Stop Thinking
- ▶ You Don't Have to Feel It to Write It
- ▶ Experimentation not Inspiration
- ▶ Building Your Mister Potato Head Bin
- ▶ 23 Seconds is a Track
- ▶ Every Producer Copies, Good Producers Copy in New Ways
- ▶ You Don't Have to be a Team Player
- ▶ Doubts and Mistakes

NOTES

02 THE DEADMAU5 PROCESS: THEORY

- ▶ Now that you know how he works, listen to some of your favorite deadmau5 tracks like:
 - ▼ "Some Chords"
 - ▼ "Ghosts N Stuff"
- ▶ Think about each individual element of the track—it might help to write down the different sounds or elements you hear. See if you can identify the 8 bar loop that the track was built around (it's where you'll hear every element playing all at once).

ASSIGNMENT

- ▶ Joel likes to work late at night when he's not thinking as clearly, so he doesn't second guess himself as much. Find the right time and place where you can stop thinking and start experimenting with your music more freely. Keep a log of your next couple work sessions by noting what the time and setting were and how you felt while you were working. Try to pinpoint the conditions that make it easiest for you to create without judgement.

NOTES

If I could just play it, I'd play it. But I can't, so I draw it.— *deadmau5*

If I could just play it, I'd play it. But I can't, so I draw it.— *deadmau5*

CHAPTER RECAP

Joel draws all of his melodies, one note at a time, into the piano roll screen of Ableton. If you've never worked this way, you should try it. Even if you're a practiced keyboard player or a formally trained musician familiar with musical notation, drawing notes into a gridded timeline and moving them around by hand can give you a whole new perspective on composing.

When you start drawing notes, don't worry about what synth sound you're using or what groove your track might end up having; just start putting down notes and adjusting them into interesting combinations that sound good to your ears. When you're working this way, your instinctual reactions to the notes are more important than the formal rules of music.

Once you've found a string of notes you like, transpose the whole melody up and down into different keys until you find a range that makes your bass resonate nicely. (If some of the concepts in this chapter—like side-chain compression, synth envelopes or arpeggiation—feel new to you, don't worry. They'll all be covered in more detail in later chapters.)

TAKE IT FURTHER

- ▶ Joel live-streams a lot of his studio sessions [here](#). Now that you know more about what's going through his head while he's working, watch some of his old streams and pay close attention to what he's doing. Is he following his own rules?

SUBCHAPTERS

- ▶ Starting a Track From Scratch

NOTES

03 THE DEADMAU5 PROCESS: PRACTICE

DEADMAU5 TEACHES ELECTRONIC MUSIC PRODUCTION 11

ASSIGNMENT

- ▶ Joel can get his ideas down and rearrange them quickly by using keyboard shortcuts to navigate in Ableton. Brush up on your command of keyboard shortcuts [here](#). Challenge yourself to start doing as much as you can in your projects without touching the mouse.

NOTES

“

You can do this in your bedroom. I've heard absolutely disgusting shit come out of high-end studios, and I've heard some amazing shit come off some little kid's laptop in LA.

— *deadmau5*

”

CHAPTER RECAP

With digital audio technology being what it is today, the idea that you need expensive studio equipment to make professional sounding EDM no longer applies. You do need a computer to record your music on and a DAW to work in. Ideally, you'd also have a piece of hardware to help your computer process audio (a digital audio converter or DAC) and a pair of monitor speakers to help you hear what you're making in greater detail.

TAKE IT FURTHER

- ▶ Joel says different DAWs can teach you different things about how to route and process your audio. You can find free trial versions of most DAWs online. Here are a few links to get you started:
 - ▼ [Ableton Live](#) (Joel will be teaching using Ableton)
 - ▼ [FL Studio](#)
 - ▼ [Cubase](#)
- ▶ Even if you've already got a favorite, download a few others and familiarize yourself with how they work. Is the DAW you've been using really the best DAW for you?
- ▶ Listen to Skrillex's album [Scary Monsters and Nice Sprites](#), and remind yourself how much a producer can do with just a laptop.

SUBCHAPTERS

- ▶ Everything Ends Up Digital
- ▶ Your Computer Setup
- ▶ DAWs
- ▶ Hardware Can Come Later
- ▶ No Headphones
- ▶ Studio Monitors
- ▶ It's About Your Ideas Not Your Gear

NOTES

ASSIGNMENT

- Whether you're in the market for new gear or not, you should stay current with what's available and train your ear to hear the subtleties of different equipment. Most music stores like Guitar Center and Sam Ash have dedicated rooms where you can listen to all different types of monitor speakers. Take a trip and familiarize your ears with the ways different speakers can shape the sound of a track. If you already own a pair of speakers, figure out how they might be changing the way your tracks sound and how you can compensate for those changes when you're producing.

NOTES

If it doesn't resolve properly, then all that other shit in the middle doesn't matter. — *deadmau5*

CHAPTER RECAP

Sometimes constraints can actually help the creative process. For instance, writing to a one note drone can focus your ear and help you build melodies that are sure to resolve.

TAKE IT FURTHER

- ▶ Spot the resolve: listen back to some of your favorite deadmau5 songs and find places where the last bar of his loop resolves back into the first bar. Does it sound harmonious to you? What can you learn from the way he resolves his melodies? While you're at it, keep track of how long each of his looped melodic structure are. Most will be four bars, so see if you can spot any that are different. If you don't know where to start, try "[Strobe](#)".

- ▶ Resolving
- ▶ Writing a Melody
- ▶ Drone Notes
- ▶ Don't Be Obvious

NOTES

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05 DEVELOPING MELODIC STRUCTURES

ASSIGNMENTS

- It's time to start building your own Mr. Potato Head bin of clips and ideas. Spend some time at your DAW developing new melodic ideas using what you've learned about Joel's process. Without worrying about the finished product, play around and build at least five melodic structures you like. Now make a folder system that will help you store and keep track of them. Ultimately, you'll probably want different folders for chord patterns, bass parts, lead lines, drum loops, and drum one shots. You'll be filling those folders up over the course of the class and using the pieces to build full tracks by the end.

NOTES

It's all just derived from sustained chords, which is all fucking music is really. — *deadmau5*

music is really. — *deadmau5*

CHAPTER RECAP

Turning your melodic structure into a layered arrangement of different instruments is easier than you'd think. Every note you're going to need is already in the chords of your melody. Your bass will be derived from the lowest notes of the chords, and your lead line will be derived from notes near the top of your chords.

You can make your parts more interesting by playing around with the length and order of the notes, moving parts up or down five or seven semitones, or using arpeggiators to make things more complicated.

TAKE IT FURTHER

- ▶ Take a deeper listen to "Cat Thruster"—take note of where the chords change and what the bass and leads are doing.
- ▶ Get to know your arpeggiator better: whether you use a plug in like Cthulu or the Arp that comes standard with your DAW, spend some time messing around with its features until you feel like you know it inside out. Arpeggiators are all over deadmau5's music—find an Arp pattern you like in one of his songs and see if you can make something that sounds similar. If you're up for a challenge, "4ware" is a good place to start.

ASSIGNMENT

- Go back to the melodic structures in your Mr. Potato Head bin and use what you've just learned to pull bass and lead lines out of each one. Save these into new folders in your clip bin.

SUBCHAPTERS

- ▶ Bass Lines
- ▶ Lead Lines
- ▶ Case Study: Cat Thruster

NOTES

“

Once you've learned the basic food groups of synthesis, then there's no plugin, no synth that's going to completely mystify you. — *deadmau5*

“

CHAPTER RECAP

Great producers don't just settle for using plug-in presets or out of the box sounds in their tracks. Learning the basic principles of how synthesizers produce sounds will help you build and tweak patches to generate sounds no one can replicate.

The best way to learn synths is by experimenting with them. Get yourself a cheap, simple synth and start twisting knobs and making noise until you get a feel for what each of the parameters does. Joel taught himself all the basics with a Roland MC-303. (You can also use a plug in like [Serum](#).) Once you've got some experience, you'll be able to hear a sound, like the deadmau5 pluck and have a good idea of how to build it yourself.

The basic components of a synthesizer are sound sources (oscillators) and modifiers (filters, envelopes etc). Oscillators produce simple waveforms, and modifiers make these simple sounds more complex. In this lesson, Joel focuses on:

Oscillators: which produce the basic waveforms of sine, square, and sawtooth, each with its own distinctive sound. These waveforms can have different frequencies, usually from 0 to 20,000Hz (Hz = oscillations per second). Having two or more oscillators playing waveforms on top of each other is called "additive synthesis."

Unison: is a kind of additive synthesis, where the synth generates multiples of the same wave form, all slightly out of tune with each other, to create a broader, richer sound.

Filters: modify a sound by taking away certain frequencies and adding emphasis to others. A low pass filter (LPF) takes out

SUBCHAPTERS

- ▶ We're Here to Create Sounds No One's Ever Heard
- ▶ Synth Basics: Waveforms and Filters
- ▶ Using Envelopes and LFOs to Modulate Sound
- ▶ How to Build the Deadmau5 Pluck
- ▶ Your First Synth can Teach You Everything

NOTES

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certain high frequencies (the low freqs “pass” through). A high pass filter (HPF) does the opposite. A band pass cuts out low and high frequencies around a certain middle band. The “cutoff” of a filter determines the frequency where the modification begins. The “resonance” affects the sharpness of the modification.

Envelopes: shape sounds over time. They usually control either the volume of a sound or the amount it is affected by the filter, from the time a note starts to the time it stops. The basic parameters of an envelope are: attack, decay, and release. If the envelope is effecting volume, attack determines how long it takes for the sound to reach full volume; decay determines how long it takes for the volume to start fading down; and release determines how long it take for the sound to go silent once the note is no longer being played. Those parameters together are often referred to as ADR. Sometimes an envelope will also have a sustain parameter (this is an ADSR envelope). Sustain determines how long a sound holds at a given volume after it has decayed.

LFO (low frequency modulation) and Cross Modulation: occurs when one waveform alters a parameter of another—usually either the pitch, the volume, or the action of the filter. This can produce tremolo-type effects (waveforms altering volume), vibrato (altering pitch), or sweeping sounds (altering the filter). If the modulation is happening at a rate of about 20hz or lower, it's considered LFO.

TAKE IT FURTHER

- ▶ Listen to The Prodigy's "Firestarter", and try to identify the preset sound from the Korg Prophecy.
- ▶ Listen to "The Veldt" for an example of the pluck sound you just learned how to build. Can you hear its parameters changing over the course of the track? What do you think is being altered?

NOTES

07 INTRODUCTION TO SYNTHESIZED SOUNDS

- ▶ For deeper dives into synth basics, try one of these websites:
 - ▼ [Synthesizeracademy.com](https://www.synthesizeracademy.com)
 - ▼ [Beausievers.com](https://www.beausievers.com)

ASSIGNMENT

- Now that you've watched Joel do it, try to build the deadmau5 pluck on your own, using the synth or plug-in of your choice. How close can you get it? Now play around with the parameters and make a totally new pluck sound that you find interesting and unique. You might want to try using it to play one of the melodic ideas in your bin.

NOTES

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“

This is all very intimidating. But it's actually not complex at all.

All this shit is no different than a VST. — *deadmau5*

CHAPTER RECAP

In modular synthesis, each of the basic elements of a synthesizer—oscillators, filters, envelopes etc— is represented by its own specialized module, which can all be mixed and matched and patched together in different ways. By messing around and connecting modules together, you can create unexpected sounds that are guaranteed to be one of a kind.

Joel spends hours experimenting at his modular walls, until he stumbles across something that catches his ears. Then he records the patches he likes and saves them in a library for later use.

Voltage: While the average VST or keyboard communicates using MIDI (a digital language in which parameters like pitch and volume are assigned to numerical values), modules in a modular system usually communicate using voltage. You'll have to acquaint yourself with the basics of controlled voltage to get started, and if you're looking to make your DAW send note information to a modular system, you'll need a MIDI to voltage converter.

TAKE IT FURTHER

Listen to deamau5's remix of "Ice Age", and pay attention to the strange sounds he's generating with his modular system. How many different patches can you identify? How do you think they might've been constructed?

There are many online resources to learn more about modular systems. Check out these links, and continue to do your own research.

SUBCHAPTERS

- ▶ Cross Modulating Simple Waves
- ▶ Using Envelopes to Automate
- ▶ Adding Effects
- ▶ Playing Sequenced Notes
- ▶ Putting Mod Synths in Your Tracks
- ▶ Start Experimenting

NOTES

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08 EXPERIMENTING WITH MODULAR SYNTHS

- ▼ [Modular Synthesis 101: The Basics](#)
- ▼ [Guide To Choosing A Modular Synth](#)
- ▼ [Purchase Modular Analog Synthesizers](#)

ASSIGNMENT

- Create your own library of blips and bleeps. Whether you've got access to a modular system or you're using a VST or keyboard synth, spend your next studio session messing around with patches, tweaking until you find some sounds that surprise you. Some might be made of musical notes, some might be more like random noises. Record them into your DAW. Then, export them as audio files, and keep them in your clip bin. Next time you're working on a track, see what they can add for you.

NOTES

In analog, there's no amount of steps. It's infinite.

— deadmau5

“

CHAPTER RECAP

The digital vs. analog debate can sometimes sound more like hot air than substance, but by running a scientific A-to-B comparison of what the two sound like, you can hear some basic differences. Analog filters tend to be warmer than their digital counterparts in subtle but noticeable ways. More markedly, analog filters have an infinite range of steps between their upper and lower limits, while even the best digital filters, which make use of oversampling and floating point integers, will always sound "steppy" as they make minute adjustments.

TAKE IT FURTHER

- ▶ You can find YouTube demos of lots of analog synths, including:
 - ▼ [the Prophet 10](#)
 - ▼ [the OSCar](#)
- ▶ You can also find YouTube demos on some other famous keyboards like:
 - ▼ [the MOOG Voyager](#)
 - ▼ [the Yamaha CS-80](#)
- ▶ Listen to the wide range of sonic possibilities. Getting to know the characteristics of some of the world's greatest synths will help prepare your ears to get better sounds out of whatever gear you're using—digital and analog alike.

SUBCHAPTERS

- ▶ Hearing the Digital Analog Difference
- ▶ Digital vs. Analog Cross Modulation
- ▶ Synths in Snowcone

NOTES

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09 DIGITAL VS. ANALOG SYNTHS

DEADMAU5 TEACHES ELECTRONIC MUSIC PRODUCTION 23

ASSIGNMENT

- ▶ Run your own Digital vs. Analog test. If you've got access to both kind of synthesizers, set up a simple A/B comparison like Joel did and try to hear the difference for yourself. Play a simple square wave at a given pitch, then run it through a low pass filter. Can you hear any differences in the oscillators on their own? Do you hear the steps in the digital filter? If you can't get your hands on the synths you need, find a music store near you and mess around with their equipment.

NOTES

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CHAPTER RECAP

If you're not at a point in your career where you're ready to invest big money in vintage synths and modular walls, you can still turn simple VST patches into unique and exciting sounds using creative processing. A good place to start is routing sounds out of your DAW through cheap guitar pedals.

There are also specific effects that can help you get the most out of different instruments. Reverbs can add a lot of texture to your drums—whether it's plate reverb on your snare or some stranger, lushier reverb on the whole kit. Unison effects (doubling and delaying) can make your leads bigger and more potent, and you should always use limiting on your bass tracks to make them sound full and even.

TAKE IT FURTHER

- ▶ Joel uses a lot of gear in this lesson—everything from expensive hardware processors, to cheap and free plug-ins. If he's using things you're not familiar with, do some research and see what the processor does—maybe there's a free trial version you can play around with, or a similar plug-in that comes with your DAW. Here's a list of what he's using:
 - ▼ reFX Nexus
 - ▼ UAD Raw Distortion
 - ▼ Fab Filter Pro L Limiter
 - ▼ Waves H-Delay
 - ▼ Eventide Ultra Harmonizer (Hardware)

SUBCHAPTERS

- ▶ Think Outside the Preset Box
- ▶ Use Effects to Create Original Sounds
- ▶ The Secret to Fat Bass
- ▶ Reverbs
- ▶ Adding Space and Depth
- ▶ Processing Shit Into Gold

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10 SHAPING SOUNDS WITH EFFECTS AND PROCESSING

DEADMAU5 TEACHES ELECTRONIC MUSIC PRODUCTION 25

ASSIGNMENT

- ▶ Try turning some shit into gold. Whether it's in an old production or something unfinished and new, find someplace you used a preset sound and process it into something newer and more exciting. How does freshening up one tired sound change your entire track?.

NOTES

“

There's no such thing as a bad kick sample. There's no such thing as a shit audio signal. You can shape any sound source to sound great. — *deadmau5*

“

CHAPTER RECAP

EDM beats are relatively simple: 126-130 bpm (beats per minute), with kicks on the quarter notes, snares on every other quarter notes and some hi-hat and percussion to add character. Simple beats are good because they let a really broad audience of listeners lock-in and groove to your music. Getting too complicated means you're probably going to lose some of your listeners. And if you're a melodically driven producer like deadmau5, flashy drum tracks usually end up taking up too much sonic space.

The biggest, most important element of any EDM beat is the kick drum. Joel builds kick drum sounds by layering samples (either from sample packs, or one-shots he cut out of other loops and songs) and EQing the samples around each other so they add up to a full-bodied kick. There are a pair of processors that play a huge role in crafting his drum sound:

Transient Designer: this is a tool for shaping the dynamics of a sound over time—much like the way an ADR envelope shapes the sound of a synth. You can use it to change the attack of a drum sound, making it more or less snappy and punchy. Or to affect the decay—making it ring out shorter or longer. In this chapter, Joel is using the SPL plug-in from Universal Audio.

Compressor: this is another dynamic tool that makes an audio signal more uniform in volume by turning loud parts quieter and quiet parts louder. The “threshold” sets the point at which the compressor starts reducing loud sounds, and the “ratio” determines how strongly it does that reduction.

SUBCHAPTERS

- ▶ Dance Beats Should Be for Everybody
- ▶ There's No Such Thing as a Bad Drum Sample
- ▶ Building Your Kick Sound
- ▶ Watch Out for Phase Cancellation
- ▶ Balancing Drums and Melody

NOTES

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“

CHAPTER RECAP

Subtle adjustments can make all the difference between lifeless and full sounding drum tracks. Joel always slips the timing of his snare hits very slightly to offset them from his kick drums. This lets the snares ring through with more clarity and punch. You can also add breath to your drums by reverbing the snare and side-chain compressing it, using your kick as the key. Side-chaining is a form of compression that reduces the volume of sounds to make more auditory space for other “key” sounds. In the case, the compressor is reducing the sound of the ringing reverb to let the kick drums punch through with more force.

The drums in "Snowcone" are made up of about 10 elements, this includes kick, snare, a creatively reinterpreted sample and a bunch of percussion and noise to add texture. Much like composing a melodic structure, Joel built the drum track for the song by making one very dense and complicated eight bar loop that he liked, then copying it across the track's timeline and muting or unmuting elements to create dynamics and drama.

TAKE IT FURTHER

- You can find loads of drum loops available online. Including free libraries like SampleSwap. Start collecting loops and listening through, noting which ones you want to keep in your bins and ones you never need to hear again. You can also start playing with your loops by snipping out one-shots you like or chopping things up into entirely new loops.

SUBCHAPTERS

- ▶ The Secret to Snare Sounds
- ▶ Making Your Drums Breathe
- ▶ Case Study: Snowcone Drums

NOTES

[illegible]

12 BEATS: PART 2

ASSIGNMENT

- Build your own eight bar drum loops. Put together everything you've learned about kicks, snares, percussion, and drum processing to build a handful of your own completely original drum loops.

NOTES

“

It's all stems from the track at its fullest, then copying, adding and subtracting parts. — *deadmau5*

“

CHAPTER RECAP

Once you've developed your melody, split it up into an arrangement with multiple instruments, honed your synth sounds, built your drum beat, and it's all coming together into about :23 seconds of looping music that you love—that's when it's time to start thinking about structuring it into a song.

Joel's structuring process starts with copy and paste. Paste your loop across a timeline, then start deleting tracks here and there. The idea is to leave behind a structure that starts sparse and develops into something full.

Once you've done that front to back, take another "bells and whistles" pass: lay in new sounds to fill dead space and add energy, or tweak your drum pattern to highlight transitions.

Structuring is also a time to look ahead to your live set. Think about what other track your new song might follow in a live mix and try to make the intro of the new track blend well with the outro of the other.

TAKE IT FURTHER

- Listen to "Stroke" again, which Joel said was essentially two tracks sewn together. Can you hear where one track starts and the other begins? What else do you notice about the structure?

SUBCHAPTERS

- ▶ Copy, Copy, Add and Subtract
- ▶ Find the Right Track Length
- ▶ Think Ahead to Your Live Set
- ▶ There's More to Music Than Big Drops

NOTES

[illegible]

13 STRUCTURING SONGS

- ▶ Joel and Mozart have a lot in common—they're both rebel composers who used their popularity to shake up the tired conventions of the musical circles they moved in. Watch the film *Amadeus*, which dramatizes the difficult truth that devoting yourself to your art often means turning your back on social norms.

ASSIGNMENT

- Break down the structure of "Phantoms Can't Hang". Listen critically to the track, paying attention to every detail and try to write down how the track changes over time. What are the different tracks? When are they coming in and out? What are the the bells and whistles? Now share your breakdowns with your classmates and see if they heard things you didn't. If you want a bigger challenge, try it again with "Strobe".

NOTES

“

CHAPTER RECAP

The best remixes reinvent the songs they come from, transforming them into wholly original works. Joel usually starts his remixes by getting rid of everything in the old track except for one featured part he wants to build around. Often it's a vocal track. This frees him up to change keys, rhythms and write whatever he wants around the feature.

He expects the same treatment from people remixing his work. He's most impressed by remixers who rearrange his chord orders, rework his grooves and produce things that are surprising and original.

TAKE IT FURTHER

- ▶ Listen to deadmau5's original recording of "The Veldt". Then compare it with the remixes by Freeform Five and Tommy Trash. What can you learn from these two very different approaches?
- ▶ Check out deadmau5's Kaskade/Skylar Grey collaboration, "Beneath With Me". Now listen to the other track Joel wrote around Skylar's vocals, "Three Pound Chicken Wing". Can you hear how one song came from the elements of the other?
- ▶ What are some of your favorite deadmau5 remixes? Share them with the class community.

SUBCHAPTERS

- ▶ Don't Remix, Rework
- ▶ Choosing Remix Material
- ▶ What Starts as a Remix...Can End as Your Own Track
- ▶ Guide to Remixing deadmau5
- ▶ Starting Your Own deadmau5 Remix

NOTES

[illegible]

14 REMIXES

ASSIGNMENT

- See what you can do with some deadmau5 stems. Pick out what stems you'd like to feature in your remix, then use everything you've learned about melody development, drum tracks, and structuring songs to build a new derivative work.

NOTES

[illegible]

“

This can all be done correctly with a minimal amount of software and less hardware. — *deadmau5*

“

CHAPTER RECAP

A good EDM producer has to have great musical instincts, and also some serious technical knowledge about processing and handling audio. The mixing process starts as you're laying down your first tracks. Set up groups to help you keep organized—with the drums all summing into a drum group and the bass and synth pads each doing the same. Balance your track volumes against each other roughly, and try to keep your master volume around -6 db so you have headroom to work with when you go into your mastering plug-ins later.

Use EQs to help similar instruments or instruments that play in similar ranges fit together without sounding muddy or dull. Figure out what part of the harmonic spectrum you want from a given instrument—top end shimmer, or bass resonance for instance—and duck the rest of the frequencies to make sonic room for other sounds.

Use side-chain compression, keyed to your kick drum, to make big leads feel like they're a cohesive part of your track. This ducks the lead's volume every time the kick hits, and keeps it from sounding like it's sitting awkwardly on top of the mix.

You also want to duck your bass volume when your kick drums hit, to avoid phase-cancellation dulling your kick sound. An LFO tool works even better than side-chain compression for this.

SUBCHAPTERS

- ▶ Tracks and Groups
- ▶ Earballing
- ▶ EQing for Clarity
- ▶ Getting Your Leads to Sit in the Track
- ▶ Shaping Your Bass
- ▶ LFO Tool vs. Compression
- ▶ Mixing in Home Studio

NOTES

[illegible]

Most importantly, don't feel like you need better gear to be better at mixing. DAWs like Ableton come with all the plug-ins you really need to make a great sounding mix. Focus on training your ears and getting used to what the plug-ins can do for you before you start investing in more studio equipment. Most of the gear Joel uses he admits he doesn't really need—for him, expanding his studio is a matter of passion, not necessity.

If you want to to dive deeper into the gear used in this chapter, here's a list:

- ▶ Fab Filter Pro L Limiter
- ▶ Ableton Compressor Plug-in
- ▶ Ableton Graphic EQ
- ▶ Xfer LFO Tool
- ▶ Waves Max Bass

TAKE IT FURTHER

- ▶ Listen to the full tracks Joel uses as examples:
 - ▼ "Polaris" for EQing stacked synths
 - ▼ "No Problem" for side-chaining a lead line
 - ▼ "Imaginary Friends" for carving low-end with an LFO Tool.
- ▶ Get to know the frequency spectrum. The better trained your ears are at distinguishing different frequencies, the better you'll be at EQing your tracks. Spend some time experimenting with your DAW's graphic EQ, or use this program to start getting used to what the different frequencies sound like.

ASSIGNMENT

- ▶ See what mixing can do. Find a track of yours that hasn't gotten a lot of mixing attention and try out the skills you've picked up in this chapter. EQ your mid-range synths and pads around each other, carve your bass and compress your leads. Export versions of the track before and after you tweak the mix so you can hear the overall difference when your work is done.

NOTES

“

CHAPTER RECAP

Lots of people send their recordings to mastering engineers to put on the final touches. If you're like Joel and you want total sonic control over your music (or if you can't afford a mastering engineer yet) you should be mastering your tracks yourself at home.

Mastering is usually just three processes: adjusting the dynamics of an entire track (difference between loud and quiet sounds), the overall EQ, and the overall volume. Joel starts his mastering process by turning his channel volumes down until his master volume is peaking around -6db. Next he EQs out every frequency in the sub-audible range below 30Hz.

Then comes the master chain, which usually consists of some combination of compressors, multi-band compressors (which can compress different frequency ranges with different intensities), parametric EQs, and limiters.

A limiter is almost always the last thing on his chain. Limiters are like harder working compressors—they apply very serious gain reduction to all sounds over a certain volume threshold. The more you limit, the more you can turn up your entire mix without it clipping. But the more you limit, the less dynamic range you have between the quiet and loud sounds in your track. Dubstep mastering is all about overcranking your limiter. Joel likes to find a sweet spot for his limiting where his track feels loud, but the quiet parts still sound quiet.

SUBCHAPTERS

- ▶ Mastering Yourself
- ▶ Mastering Basics
- ▶ Limiting
- ▶ No Magic Master Chain
- ▶ Loudnesss. Perceived Loudness
- ▶ Getting Feedback on

NOTES

[illegible]

16 MASTERING

Here's some of the gear featured in this lesson:

- ▶ Fab Filter L1 Stereo Maximizer
- ▶ Fab Filter Pro L Limiter

TAKE IT FURTHER

- ▶ Listen to some different approaches to limiting. Listen to Skrillex's Scary Monsters and Nice Sprites again. Which are the loud sounds and which are the quiet sounds? How much difference can you hear between them?
- ▶ Now listen to Rush's "Tom Sawyer" and ask yourself the same questions. Now listen back to some of your favorite tracks—what kind of dynamic range do they have? This will help you figure out what kind of limiting might be right for your music.

ASSIGNMENT

- ▶ Do a blind loudness taste-test. Take one of your own tracks and add a limiter to the master channel. Export three different versions of the track with different levels of limiting—one very light; one in the sweet spot that still gives good dynamic range; and one with the limiter cranked to dubstep levels. Now listen to each of those three tracks on different stereo systems—in your car, over headphones, on big and small speakers. Which style of limiting is usually your favorite?

NOTES

“

The processors should each do one thing as opposed to having one thing that will do it all for you. It won't.

— deadmau5

“

CHAPTER RECAP

When you sit down to do your mastering work, remember, your track was built out of one eight bar loop then copied, pasted, and tweaked across the timeline. Focus on mastering your initial loop first, and your whole track should sound pretty good.

TAKE IT FURTHER

- ▶ Listen to the track and try to hear what it needs. Does your bass sound weak at times?—try multiband compressing the low end. Is one instrument too loud?—try to limit it down, or carve its main frequencies out with an EQ. What's important to remember is that every track needs a different master chain, with a different array of processors. Here's the gear that went into mastering "Snowcone":
 - ▼ Fab Filter Linear Phase EQ
 - ▼ Waves MStereo expander
 - ▼ Xfer Records OTT multiband compressor
 - ▼ Fab Filter PRO MB
 - ▼ Fab Filter Pro L
- ▶ Joel also uses these plug-ins in the lesson
 - ▼ Waves L2 Limiter
 - ▼ Waves C4 Multiband Compressor

SUBCHAPTERS

- ▶ Comparing Different Master Chains
- ▶ Parametric EQing
- ▶ Keep an Eye on Signal Path

NOTES

17 MASTERING CASE STUDY: SNOWCONE

DEADMAU5 TEACHES ELECTRONIC MUSIC PRODUCTION 39

ASSIGNMENT

- Congratulations, you've gone through deamau5's entire production process! It's time to put everything you've learned in the studio together. Take a break from watching the class and focus on producing one finished track using Joel's methods to arrange, structure, mix and master it. Go back and rewatch the studio lesson chapters if you find yourself getting stuck.

NOTES

[illegible]

“

Nobody likes a guy who keeps sending out tons of demos.

— *deadmau5*

“

CHAPTER RECAP

Joel started out probably a lot like you—making tracks at home, wondering if he'd be able to turn his passion for music into a career. He didn't even plan on being a superstar. He figured working as an engineer, or any other job where he could work with sound would be a great way to make a living. Now he's made it as a producer, runs his own label, and has to sign the next generation of up and coming EDM artists. Along the way, he's formed some strong opinions on what producers should be focusing on to jumpstart their careers.

Focus on putting a great package together, and don't worry as much about bombarding the world with your music. Make sure your songs sound great, that you understand your brand and image, that you invest in your studio and stage show when you can, and that you're prepared to present labels with a professional, market-ready package.

While you're doing that, get involved in the music world. Meet real people who have the same passions as you do. Real-world personal connections are always worth more than cold submissions. That's how deadmau5 got discovered and how deadmau5 discovered Skrillex. The rest is history.

TAKE IT FURTHER

- Check out [Rez](#), the newest artist on Joel's label. Pay attention to her art, her image and how it all fits together with her music to make something EDM fans will want to buy. Can you tell why Joel signed her?

SUBCHAPTERS

- ▶ Labels are Looking for the Total Package
- ▶ The Truth About Getting Signed
- ▶ Invest in Yourself
- ▶ Making Music Your Full Time Job
- ▶ Define Your Brand
- ▶ The Secret to Selling Yourself: Don't

NOTES

[illegible]

18 STARTING YOUR PRODUCING CAREER

- ▶ Listen to deadmau5's breakout hit "[Faxing Berlin](#)" again. And get to know Pete Tong, the British radio DJ who gave it its first airplay on [his BBC Radio show](#).
- ▶ And if you still don't know, but would really like to, you can find out how deadmau5 came up with his stage name [here](#).

ASSIGNMENT

- Think about your brand and do some market research. Come up with one word or one image (something you can put on a coffee mug) that lets people know who you are. Now share that word or image or logo with other people in your network and the class community, and see what meanings they take away from it. How does it make them feel? Is your message getting across the way you expected?

NOTES

[illegible]

“

I became business savvy because I learned very early on how people get exploited in the arts. — *deadmau5*

“

CHAPTER RECAP

The music business is not out there to be your friend. It's there to make money for record labels—which means sometimes artists get exploited in the process. Joel did. He's not the first and he won't be the last. Once your career is getting near the record label stage, you'll want to prepare yourself by learning the basics of entertainment law and publishing deals. It's also crucial to get an honest, hardworking team of people around you to look out for your interests. You can't expect your record label to do any of that for you.

ASSIGNMENT

- ▶ Read up a little on entertainment law and music publishing basics. Check out these articles and continue to do your own research.
 - ▼ [Music Publishing Basics: An Overview](#)
 - ▼ [Music Publishing Basics to Know](#)

SUBCHAPTERS

- ▶ Learn the System and Make It Work For You
- ▶ The Problems With Major Labels
- ▶ Building Your TeamRehaQ
- ▶ The Online Marketplace
- ▶ An Approach to Making Albums
- ▶ Don't Stress Over Titles

NOTES

[illegible]

“Nobody remembers what happened in the middle of your set. It's all about the start and the end, those are the kind of moments you need to make happen.— *deadmau5*”

CHAPTER RECAP

A deadmau5 concert isn't a "live" set, in the sense he's playing all the music then and there on the spot. But his set is a lot more technically involved than your average EDM concert (which usually consists of a DJ hitting play on a CDJ machine). Joel performs using his DAW, a mixing board, and an array of outboard synths that give him more options for manipulating sounds on the fly.

When you're putting your live rig together, think of a way to perform your music that both keeps the audience engaged and keeps you challenged and engaged. (If things go well, you'll be performing your live set a lot, you don't want to get bored). Also remember to make the beginning and end of your set as powerful as they can be. Yes, you should pay attention to the overall arc of your concert and how one song leads into the next, but the moments that really matter are the beginning and end. That's where your best tracks should be. Nail the beginning and end of your set, and the average audience member will forget the rest.

TAKE IT FURTHER

- ▶ Watch a deadmau5 concert dvd, like [Meowingtons Hax 2k11](#). What can you learn about what he's doing on stage and how he's ordering his set?
- ▶ Watch deadmau5 break down a live rig from a past tour [here](#).

SUBCHAPTERS

- ▶ Programming Shows
- ▶ Playing the DAW
- ▶ Crafting Your Set List
- ▶ Openings and Endings Matter Most

NOTES

[illegible]

- ▶ Joel's been outspoken on Twitter and other platforms about EDM DJs not putting enough creativity into their live sets. Read what he thinks, in his own words [here](#).

ASSIGNMENT

- If you're already performing your music live, try rewriting your own setlist keeping Joel's advice in mind. Next time you perform, pay attention to how the crowd reacts to the beginning and end of the set, are you putting your best songs where they belong? If you're not actively performing, then it's time to start. Offer to DJ a friend's party, or ask your favorite bars if they ever have live DJ sets. Find a local college radio station and see if you can DJ your own show, or work up to it. Get yourself out in the world—people will start taking your music as seriously as you do.

NOTES

“

Shit will go wrong, shit you can't foresee. — *deadmau5*

“

CHAPTER RECAP

A deadmau5 show is a massive production, full of moving parts—computers, synths, lights, projections, staging, robotics—etc. Your live show might not be as intense, but you can still follow the basic principles that have turned Joel's road show into a success.

Always rehearse your whole set, in detail, with every technical system running. Don't trust that things will work out magically when you get to the club. If you bring gear on the road with you, try to make sure it's cheap and easily replaceable. For instance, Macs are a lot easier to replace than custom built PCs. Get into all the technical aspects of your show—learn about projections, lights, and other systems outside of your expertise—both as a challenge to yourself, and to help your team run their systems better.

Most importantly, get ready for things to go wrong. It's happened to Joel at every level of his career, and it's going to happen to you too. And when things do go wrong, keep it cool. A DJ freaking out is always more embarrassing than a technical glitch.

TAKE IT FURTHER

- ▶ Look up DJ fails on YouTube and share some of your favorites with your classmates—as examples of what not to do.

SUBCHAPTERS

- ▶ A Show, B Show
- ▶ Rehearse Every Aspect of Your Show
- ▶ What's in the Cube
- ▶ Learn Your Systems
- ▶ Keeping Your Equipment Running
- ▶ Keep it Cool

NOTES

[illegible]

21 ON STAGE: THE TECHNICAL SIDE

DEADMAU5 TEACHES ELECTRONIC MUSIC PRODUCTION 46

ASSIGNMENT

- ▶ **Rehearse.** Find a way to rehearse your set, from front to back, at concert-level volume, with any visual and stagecraft elements you're using. Maybe you can do this in a rehearsal studio or in a friend's basement. Make sure you get involved in the technical details—if there are any systems in use that you don't understand, ask questions, research solutions and get to know the systems better.

NOTES

[illegible]

“

I like to not know everybody's there....I can't read an audience and play to them, that's just not my thing.— *deadmau5*

“

CHAPTER RECAP

You don't need to be comfortable on stage, or be a master of playing to the crowd to put on a great live show. Joel still gets nervous every time he takes the stage, and chances are you always will too.

It's important to understand is that people at a concert expect a spectacle. It's got to be about more than just playing your music and sounding great. (They could get that at home, listening to your record.) Give them something they'll never forget—a bit of showmanship, a touch of the unexpected—and they'll be back to see you again and again.

TAKE IT FURTHER

- Watch Joel drop "Old Mcdonald" via Martin Garrix at One Ultra.

ASSIGNMENT

- Think about what you can do to add a spectacular element to your live sets. Then take a video of your performance and upload to Rate and Review to share it with your classmates. Ask for feedback and see if they're impressed!

SUBCHAPTERS

- ▶ Forget the Crowd
- ▶ Don't Be Like a Saw Movie
- ▶ Putting on a Show
- ▶ Another Day at the Office
- ▶ Feeling Comfortable on Stage

NOTES

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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- ▶ Join the deadmau5 [MasterClass Facebook group](#) to connect with your peers
- ▶ Contribute to the lesson discussions after each video and read what others have to say
- ▶ Complete and upload your relevant assignments to 'Rate and Review' for peer feedback
- ▶ Submit an Office Hour question to deadmau5.

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