ED76

the educational compressor VST

OUTLINE

OUTLINE
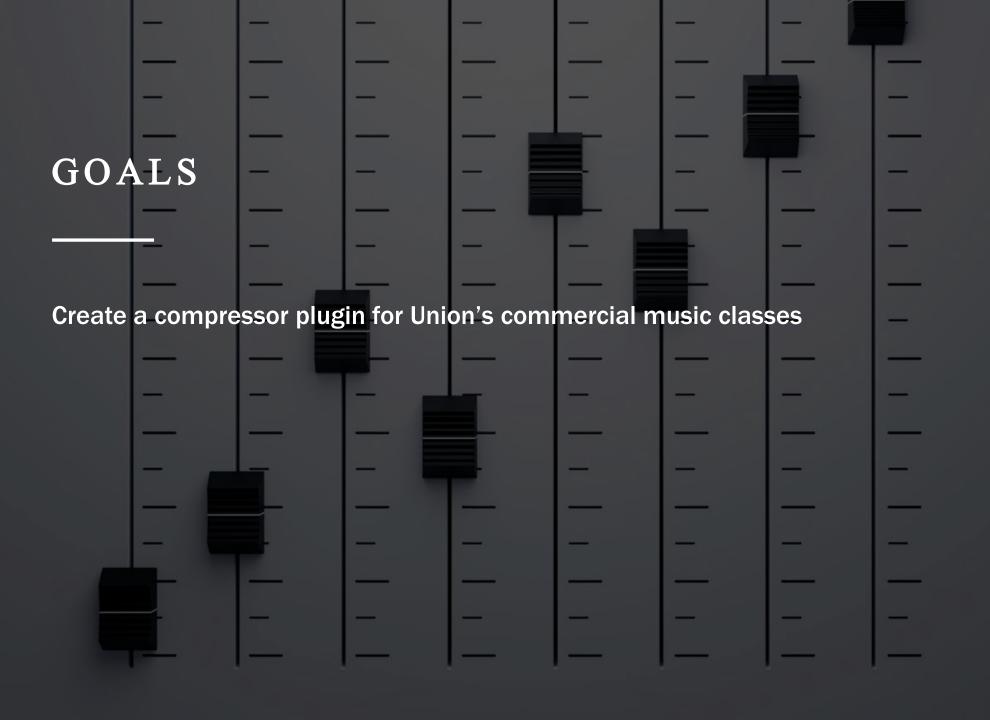
———

1. Goals

OUTLINE

—————
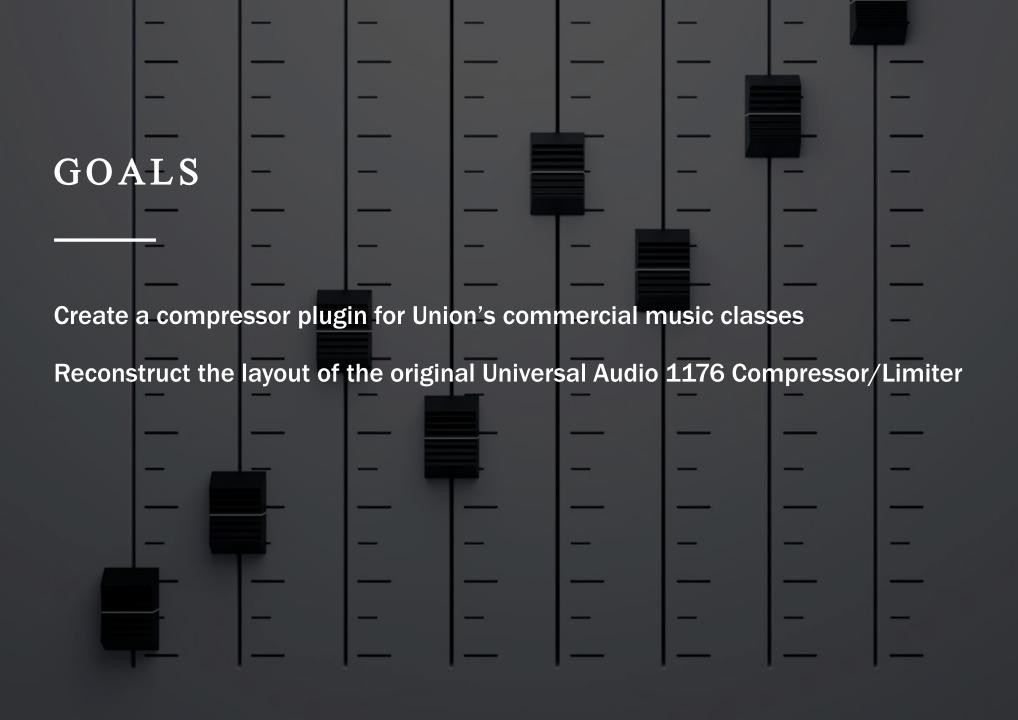
1. Goals

2. Road Travelled

OUTLINE

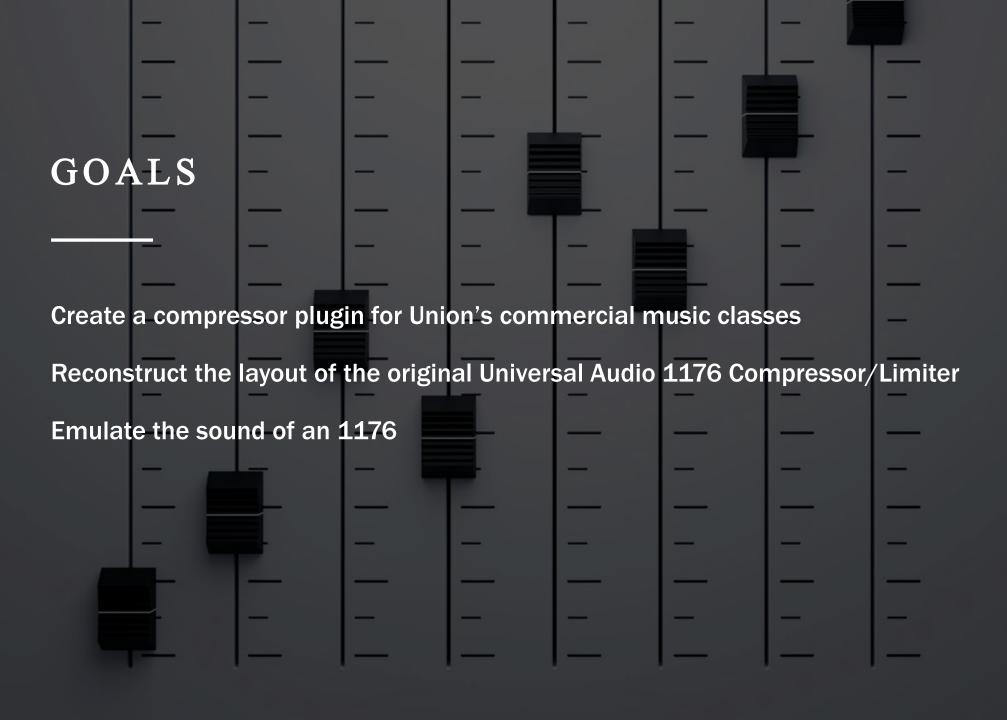———

1. Goals

2. Road Travelled

3. Lessons Learned

OUTLINE

1. Goals

2. Road Travelled

3. Lessons Learned

4. Demo

OUTLINE

1. Goals

2. Road Travelled

3. Lessons Learned

4. Demo

5. Questions

GOALS

GOALS

_____

Create a compressor plugin for Union's commercial music classes

GOALS

Create a compressor plugin for Union's commercial music classes

Reconstruct the layout of the original Universal Audio 1176 Compressor/Limiter

GOALS

Create a compressor plugin for Union's commercial music classes

Reconstruct the layout of the original Universal Audio 1176 Compressor/Limiter

Emulate the sound of an 1176

GOALS

Create a compressor plugin for Union's commercial music classes

Reconstruct the layout of the original Universal Audio 1176 Compressor/Limiter

Emulate the sound of an 1176

Educational elements (tooltips, rich menu)

TOOLS USED

Language: *C++ and JUCE Library*

JUCE

JUCE

👥 **Leading framework for developing multi-platform audio applications**

https://juce.com

JUCE

👥 **Leading framework for developing multi-platform audio applications**

✓ **Project management with Projucer application**

https://juce.com

JUCE

👥 **Leading framework for developing multi-platform audio applications**

✓ **Project management with Projucer application**

🖥 Digital audio workstations like Logic, Live, Pro Tools or Cubase

JUCE

👥 **Leading framework for developing multi-platform audio applications**

✓ **Project management with Projucer application**

🖥 **Digital audio workstations like Logic, Live, Pro Tools or Cubase**

🗔 **Build VST, VST3, AU, RTAS and AAX format plugins with ease, and host VST and AU plugins inside your own applications.**

https://juce.com

JUCE

- **Leading framework for developing multi-platform audio applications**

- Project management with Projucer application

- Digital audio workstations like Logic, Live, Pro Tools or Cubase

- Build VST, VST3, AU, RTAS and AAX format plugins with ease, and host VST and AU plugins inside your own applications

- Provides classes to manage audio I/O, audio processing (DSP), and media reading and writing
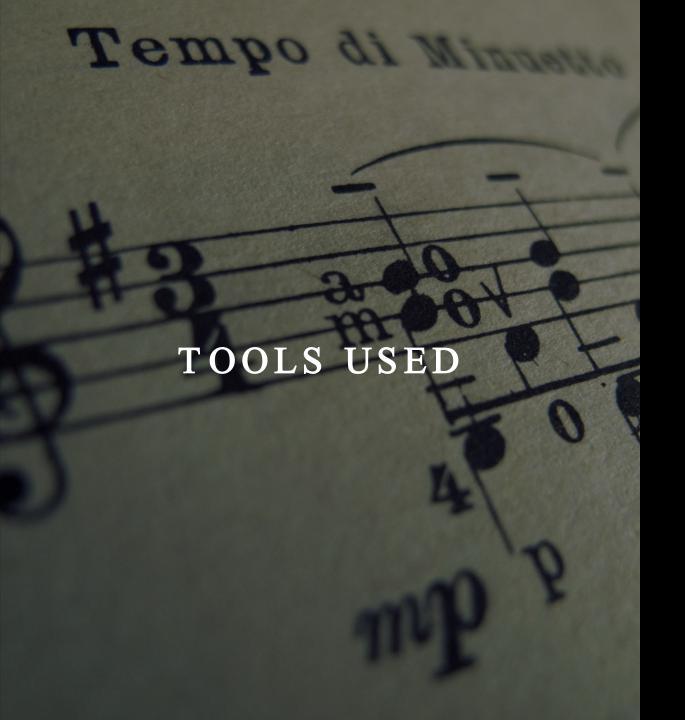
https://juce.com

TOOLS USED

Language: *C++ and JUCE Library*

IDE: *Xcode 11.3.1*

TOOLS USED

Language: *C++ and JUCE Library*

IDE: *Xcode 11.3.1*

Testing environment: *Logic Pro, Pro Tools*

TOOLS USED

Language: *C++ and JUCE Library*

IDE: *Xcode 11.3.1*

Testing environment: *Logic Pro, Pro Tools*

Format: *Audio Unit (Component)*

WHAT IS A COMPRESSOR?

———

WHAT IS A COMPRESSOR?

——

Effect used in live and studio contexts

WHAT IS A COMPRESSOR?

——

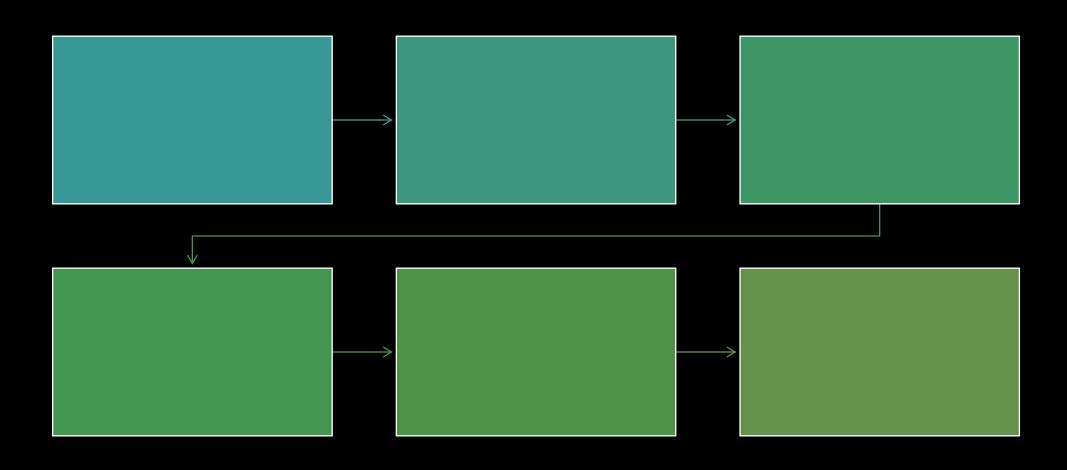**Effect used in live and studio contexts**

Balance and control dynamics

WHAT IS A COMPRESSOR?

────

Effect used in live and studio contexts

Balance and control dynamics

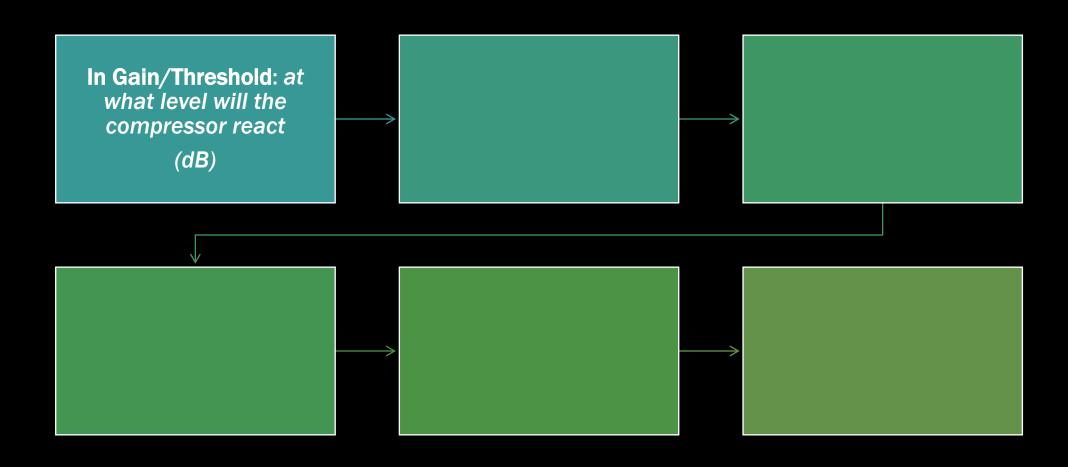Make loud sounds quieter/soft sounds louder

WHAT IS A COMPRESSOR?
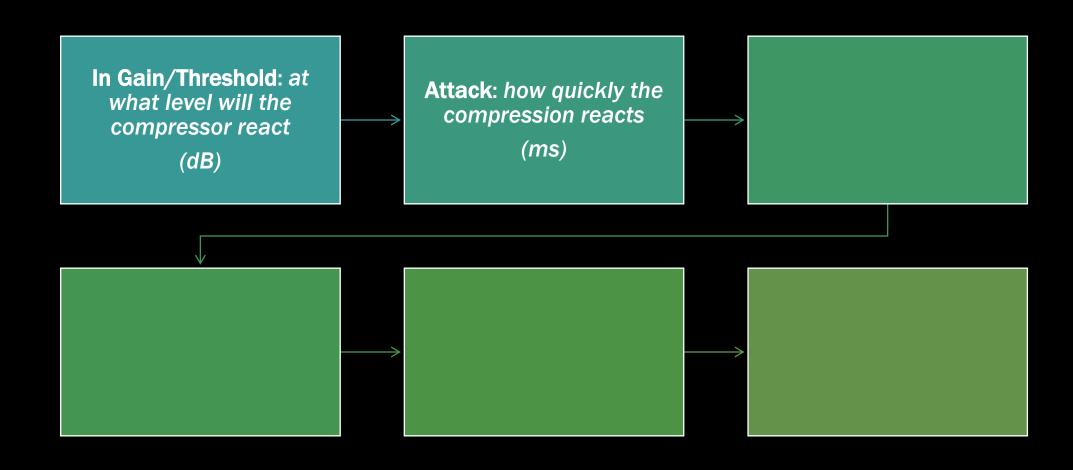
——————

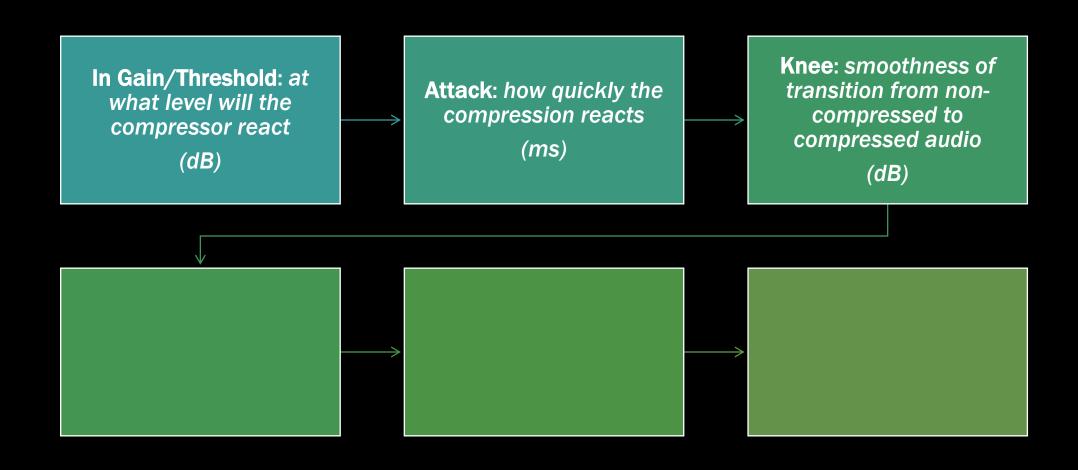Effect used in live and studio contexts

Balance and control dynamics

Make loud sounds quieter/soft sounds louder

Add color to a sound

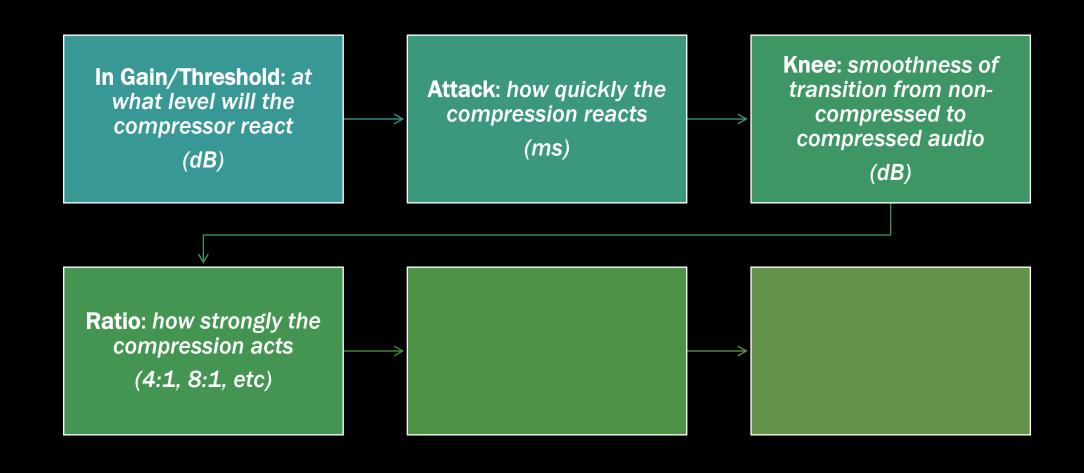# STAGES OF A SIGNAL

STAGES OF A SIGNAL

In Gain/Threshold: *at what level will the compressor react*

(dB)

STAGES OF A SIGNAL

In Gain/Threshold: *at what level will the compressor react*

(dB)

Attack: *how quickly the compression reacts*

(ms)

STAGES OF A SIGNAL

In Gain/Threshold: *at what level will the compressor react* *(dB)*	**Attack:** *how quickly the compression reacts* *(ms)*	**Knee:** *smoothness of transition from non-compressed to compressed audio* *(dB)*

STAGES OF A SIGNAL

In Gain/Threshold: *at what level will the compressor react*

(dB)

Attack: *how quickly the compression reacts*

(ms)

Knee: *smoothness of transition from non-compressed to compressed audio*

(dB)

Ratio: *how strongly the compression acts*

(4:1, 8:1, etc)

STAGES OF A SIGNAL

In Gain/Threshold: *at what level will the compressor react*

(dB)

Attack: *how quickly the compression reacts*

(ms)

Knee: *smoothness of transition from non-compressed to compressed audio*

(dB)

Ratio: *how strongly the compression acts*

(4:1, 8:1, etc)

Release: *speed at which compression lets go of the signal*

(ms)

STAGES OF A SIGNAL

In Gain/Threshold: *at what level will the compressor react*

(dB)

Attack: *how quickly the compression reacts*

(ms)

Knee: *smoothness of transition from non-compressed to compressed audio*

(dB)

Ratio: *how strongly the compression acts*

(4:1, 8:1, etc)

Release: *speed at which compression lets go of the signal*

(ms)

Out/Makeup Gain: *volume added after compression*

(dB)

EXAMPLES

https://sweetwater.com

THE UA 1176LN

TIMELINE

August

Met with client, Bob Mayo

August

Met with client, Bob Mayo

Early design ideas

September

— visual mockups
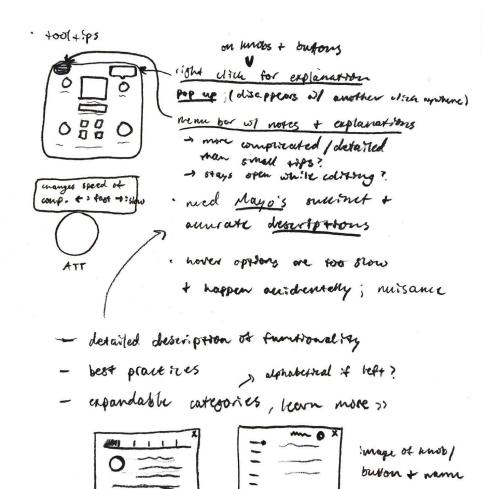

copy OG
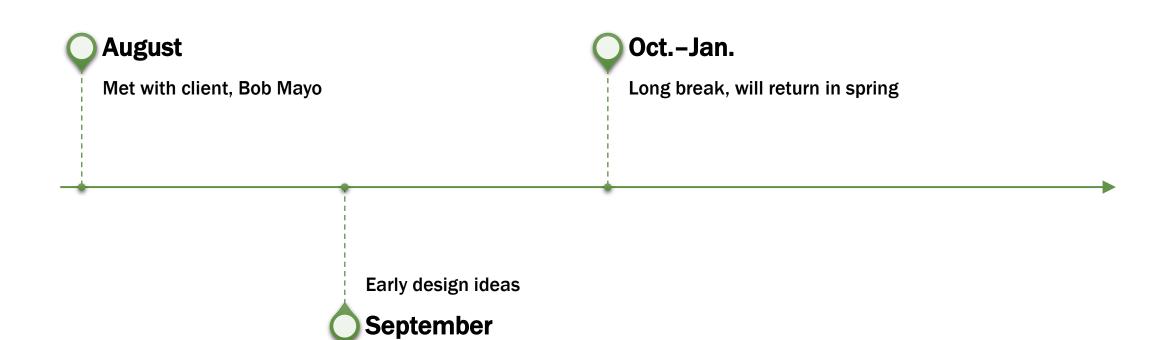

could be
(like in logic)

← corr.
← 40
← EN

(behringer)

progression through stages of signal

in → attach → ratio → release → out

Styles: white, black, olive, + orange simple/
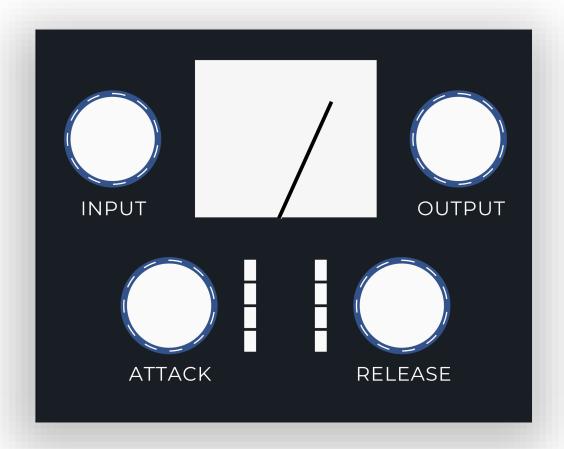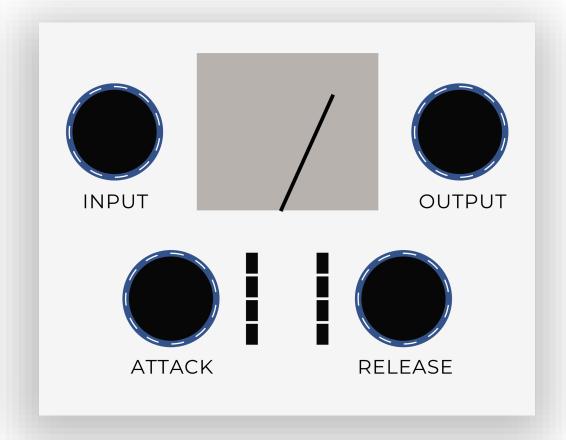minimalist scheme ; or hyper-realistic

• tool tips

on knobs + buttons

right click for explanation

pop up ; (disappears w/ another click anywhere)

menu bar w/ notes + explanations
→ more complicated / detailed
than small tips?
→ stays open while editing?

changes speed of
comp. ← = fast → = slow

ATT

• need Mayo's succinct +
accurate descriptions

• hover options are too slow
+ happen accidentally ; nuisance

→ detailed description of functionality

— best practices   → alphabetical if left?

— expandable categories, learn more >>

image of knob/
button + name

August

Met with client, Bob Mayo

Oct.–Jan.

Long break, will return in spring

Early design ideas

September

February

Signed contract

Learning C++ basics

GUI development

Xcode issues

INPUT   OUTPUT   ATTACK   RELEASE
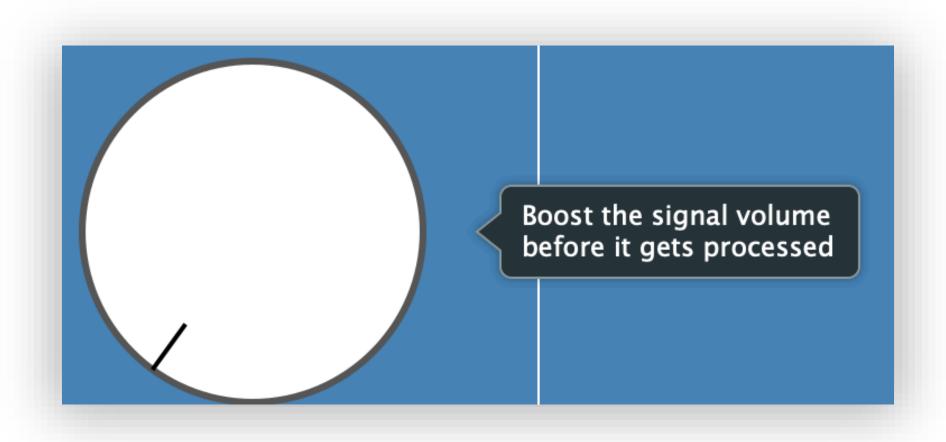
INPUT   OUTPUT   ATTACK   RELEASE

February

Signed contract

Learning C++ basics

GUI development

Xcode issues

GUI ready to go

Troubles with tooltips

Got help on Discord

March

February

Signed contract

Learning C++ basics
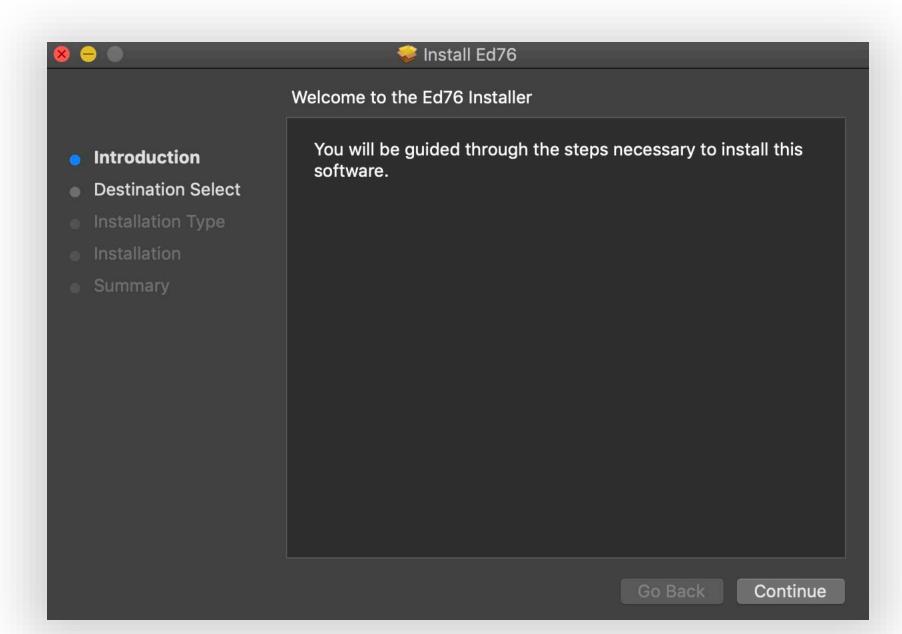
GUI development

Xcode issues

March

GUI ready to go

Troubles with tooltips

Got help on Discord

April

Salvage mode

Rabbit trail plan B for DSP

Plan C worked out

Not much time for testing
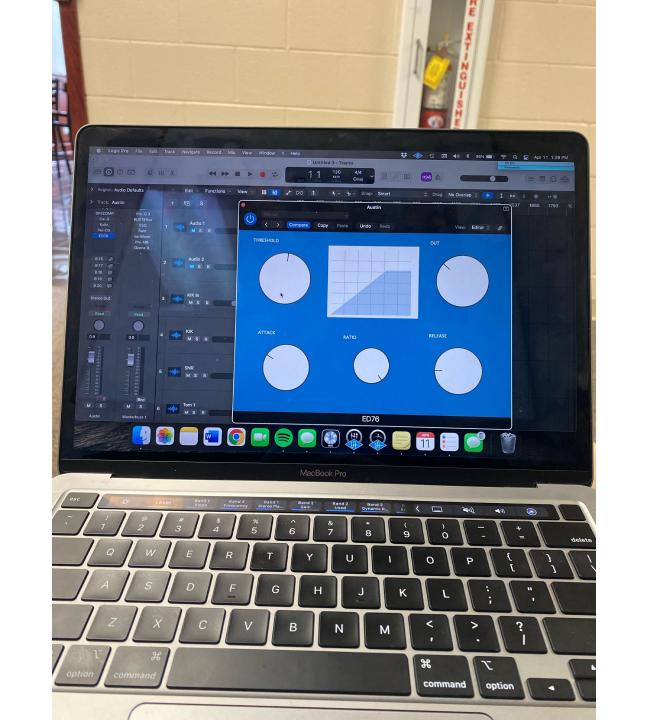
https://github.com/DanielRudrich/SimpleCompressor

Install Ed76

Welcome to the Ed76 Installer

- **Introduction**
- Destination Select
- Installation Type
- Installation
- Summary

You will be guided through the steps necessary to install this software.

Go Back   Continue

RETROSPECTIVE

STRUGGLES

STRUGGLES

C++ basics were not a big issue

STRUGGLES

C++ basics were not a big issue

Video vs text tutorials

STRUGGLES

C++ basics were not a big issue

Video vs text tutorials

Deciphering the JUCE documentation

STRUGGLES

C++ basics were not a big issue

Video vs text tutorials
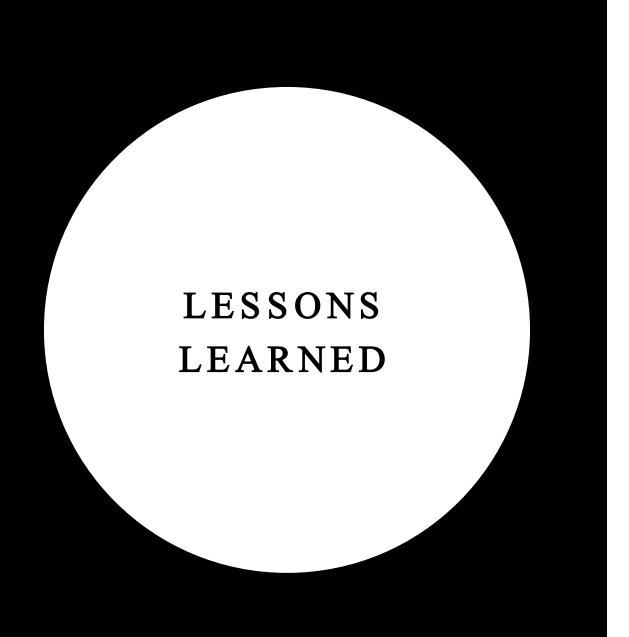
Deciphering the JUCE documentation

Customizing the GUI

STRUGGLES

C++ basics were not a big issue

Video vs text tutorials

Deciphering the JUCE documentation

Customizing the GUI

DSP algorithms and implementation

LESSONS LEARNED

LESSONS LEARNED

Self-teaching in computer science is hard

LESSONS LEARNED

Self-teaching in computer science is hard

Leave some of the fun and easy stuff for the end

LESSONS LEARNED

Self-teaching in computer science is hard

Leave some of the fun and easy stuff for the end

Be strict about requirements vs bonus features

LESSONS LEARNED

Self-teaching in computer science is hard

Leave some of the fun and easy stuff for the end

Be strict about requirements vs bonus features

Predicting difficulty is difficult

LESSONS LEARNED

Self-teaching in computer science is hard

Leave some of the fun and easy stuff for the end

Be strict about requirements vs bonus features

Predicting difficulty is difficult

50 total hours can be 75% treading water

LESSONS LEARNED

Self-teaching in computer science is hard

Leave some of the fun and easy stuff for the end

Be strict about requirements vs bonus features

Predicting difficulty is difficult

50 total hours can be 75% treading water

Motivation is hard to come by

DEMO