

Polyphonic Pitch Shifter AudioUnit Plugin

A real-time polyphonic pitch shifter plugin designed for use with guitar (even down to Drop F tuning), built in the style of Airwindows plugins with simple UI controls.

Features

- **Pitch Shifting Range:** -12 to +12 semitones
- **Mix Control:** Blend between dry and processed signal (0-100%)
- **Formant Preservation:** Control how much of the original formants are preserved (0-100%)
- **Latency Mode:** Choose between lowest latency or higher quality processing
- **Ultra-Low Frequency Support:** Optimized for tracking notes as low as Drop F (21.83 Hz)
- **Polyphonic Processing:** Handles multiple notes simultaneously
- **Airwindows-style UI:** Simple sliders interface for easy control

Building the Plugin

This plugin can be built on macOS using the provided CMake build system. See the [Build Instructions](#) for detailed instructions.

Online Build Options

For systems with limited storage space, you can build this plugin using:

1. **GitHub Codespaces** (recommended)
2. **Replit**
3. **GitPod**

Run the included `compile_online.sh` script to automatically detect your environment and set up the build.

RubberBand Integration

This plugin uses the RubberBand library for high-quality pitch shifting. The implementation includes:

- Real-time optimization flags
- Thread-safe parameter updates
- Dynamic buffer sizing
- Latency compensation

- Special configurations for low frequency handling

Usage Tips

1. **For Ultra-Low Tunings:** When using Drop F or other very low tunings, set your DAW buffer size to at least 256 samples
2. **Clean Signal Path:** For best tracking, feed the plugin a clean signal before any distortion or heavy effects
3. **Formant Control:** Use higher formant preservation values for more natural-sounding large pitch shifts
4. **Latency Tradeoff:** "Low Latency" mode is best for live playing, while "High Quality" provides better sound at the cost of more latency

Requirements

- **macOS:** 10.9 or later
- **DAW:** Any AudioUnit (AU) compatible host
- **Build Requirements:** CMake 3.10+, RubberBand library

Legal

This is an open-source plugin inspired by the Airwindows plugin style but is not affiliated with Airwindows.

Troubleshooting

If you encounter issues with low frequency tracking:

- Try increasing your DAW buffer size
- Ensure your input signal is clean and strong
- See the [Optimization Guide](#) for detailed tips

Future Plans

- VST3 version
- Additional algorithm options
- GUI improvements