

Digital Healing - An Interactive Sound Healing Instrument Synthesizer

By Emma Wang

Inspiration – The 9 Solfeggio Frequencies



- Natural Anesthetic
- Heals Physical Pain
- Heals Emotional Pain
- Increases Courage
- Cleanses Aura
- Emotional Wellness



- Rejuvenates
- Regenerates Tissues
- Heals Internal Organs
- Increases Energy
- Immune System
- Heals Auric Field



- Liberates Guilt & Fear
- Turns Grief Into Joy
- Cleanses Negativity
- Empowers Goals
- Inner Peace
- Root Chakra



- Facilitates Change
- Enhances Creativity
- Clears Negative Energy
- Manifests Intentions
- Cleanses Trauma
- Sacral Chakra



- Love Frequency
- Transformational
- Divine Miracles
- Self Confidence
- Restores DNA
- Solar Plexus Chakra

Inspiration – The 9 Solfeggio Frequencies



- Attracts Love
- Positive Energy
- Balances Emotions
- Heals Relationships
- Brings Harmony
- Heart Chakra



- Self Expression
- Problem Solving
- Cleanses Cells
- Cleanses Viral Infections
- Purifies Body & Mind
- Throat Chakra



- Return To Spiritual Order
- Awakens Intuition
- Raises Cell Vibrations
- Awakens Inner Strength
- Bridge To Higher Self
- Third Eye Chakra



- Christ Consciousness
- Pure Miracle Tone
- High Level Intuition
- Telepathy
- Psychic Vision
- Crown Chakra



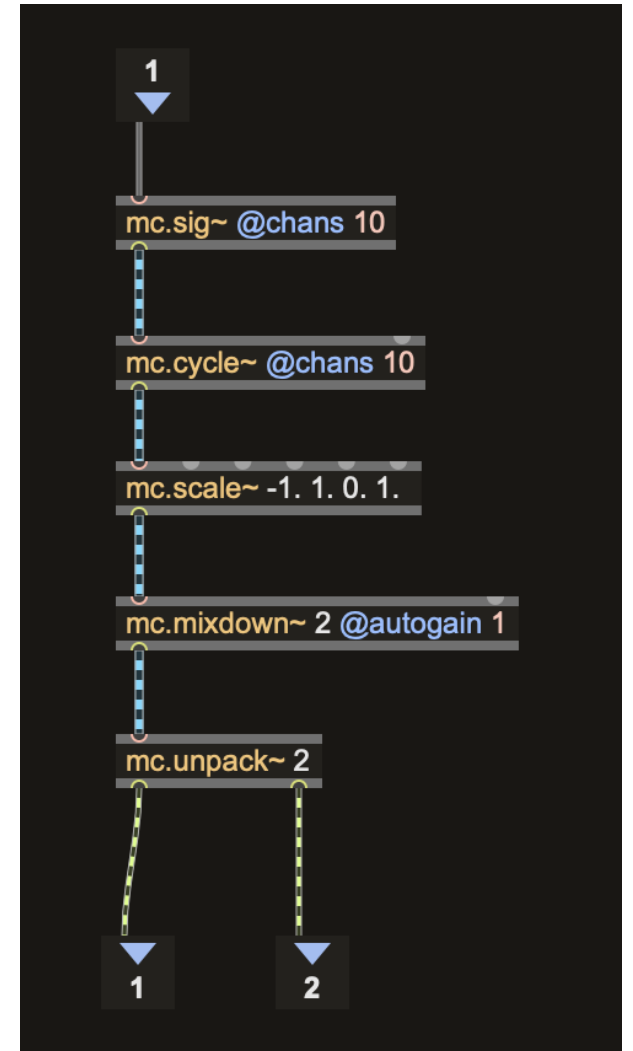
Interface

- Three major parts
 - Multi-channel frequency generator
 - FM synthesizer and reverb effect
 - Jitter objects for interactive visual



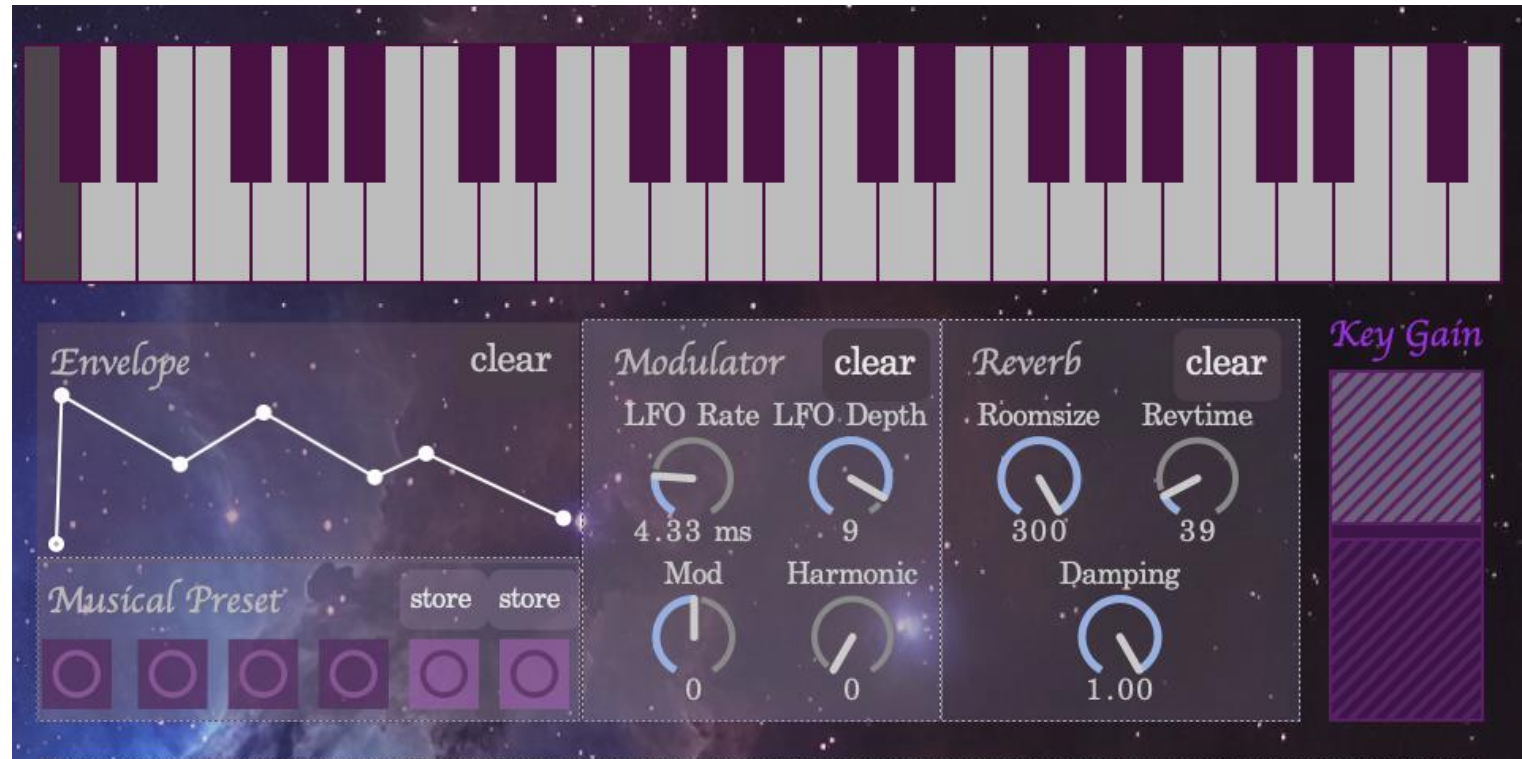
Multi-channel frequency generator

- Spatial & Layered playback
- 10 channel of signals adds to a thicker & Fuller tone



FM synthesizer

- Takes in user-defined parameters to shape frequencies through function-based envelope on a keyboard to play live with the background tone.

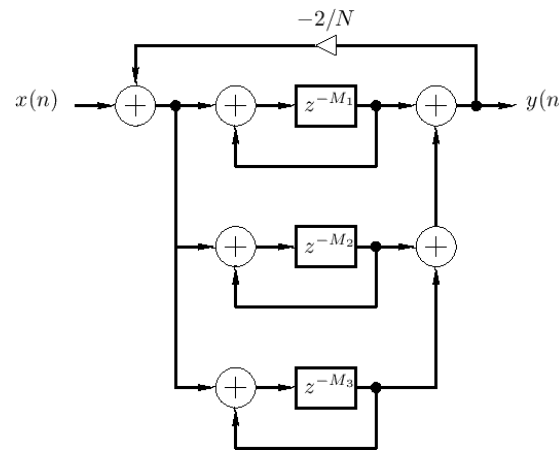
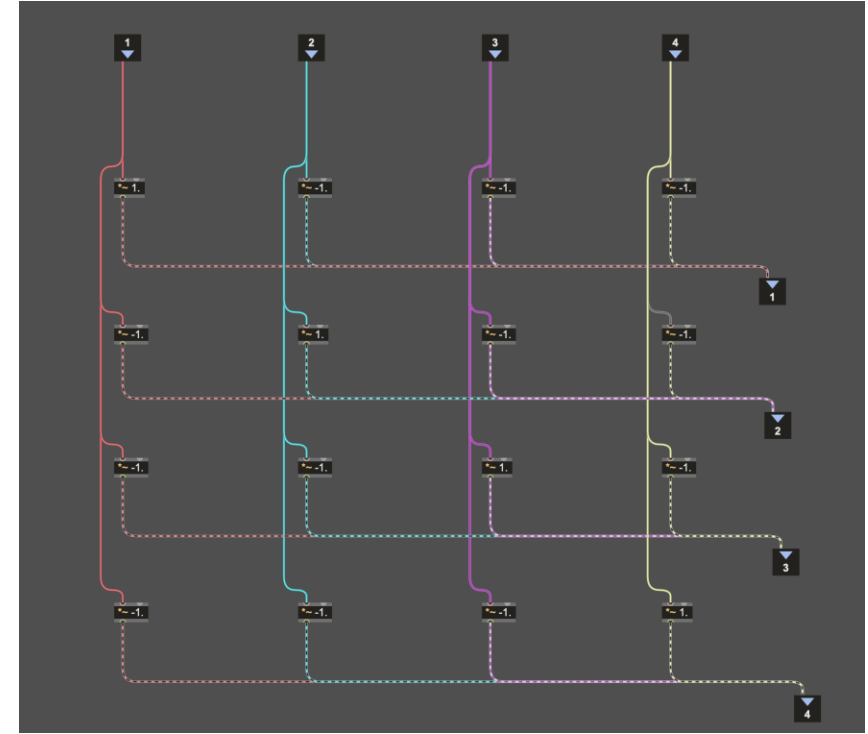
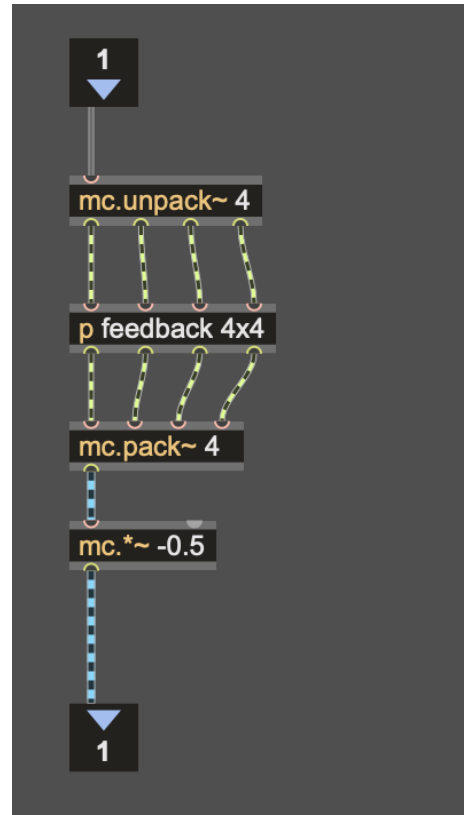


Dials

- Harmonic Dial
 - Sets the ratio between the modulator and carrier frequencies
 - Changes how fast modulator signal oscillates compared to the carrier frequency
- Mod Dial
 - Controls modulation depth by scaling modulator's amplitude before carrier
 - The higher the shaper the tone
- LFO Dials
 - Vibrato intensity (depth) and rate

Reverb - Gigaverb

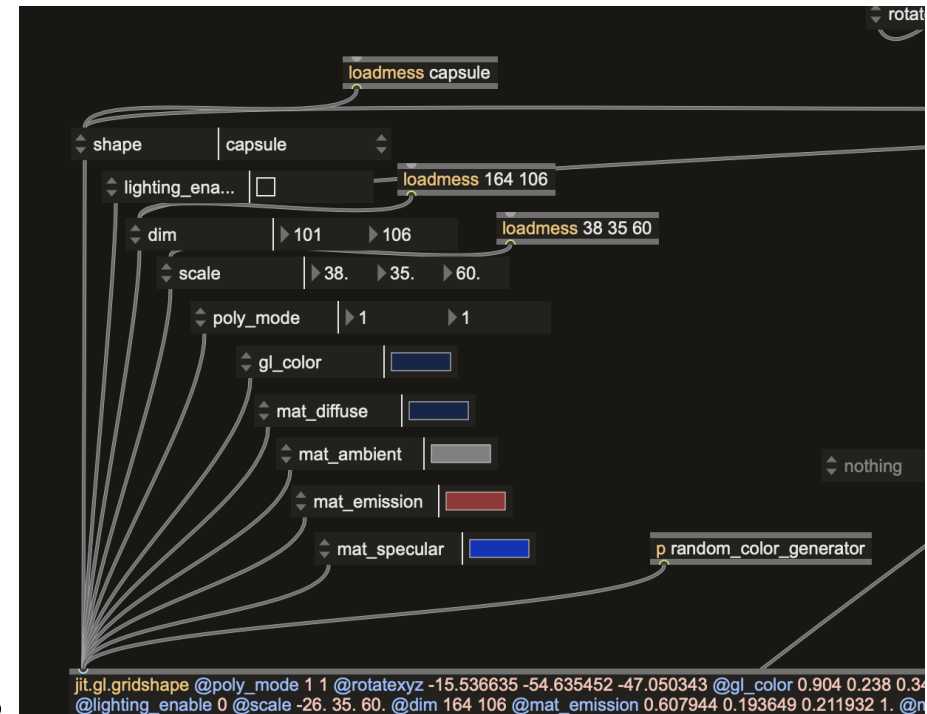
- Based on Feedback Delay Network using 4 or more delay lines, each includes
 - Lowpass filtering
 - Feedback gain
- Used unitary Feedback matrix (eg. householder) to mix delay outputs and redistributes them as input



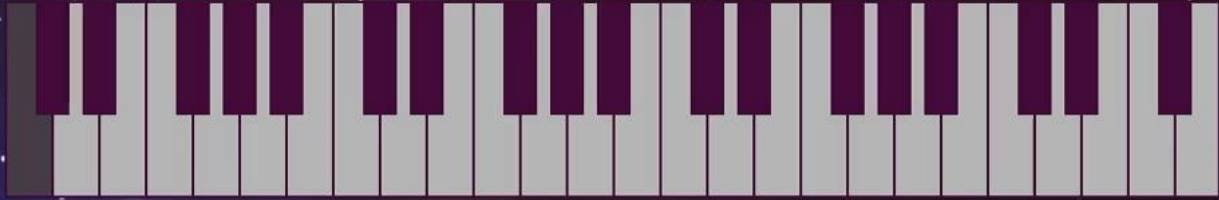
$$\mathbf{A}_4 = \frac{1}{2} \begin{bmatrix} 1 & -1 & -1 & -1 \\ -1 & 1 & -1 & -1 \\ -1 & -1 & 1 & -1 \\ -1 & -1 & -1 & 1 \end{bmatrix}.$$

Jitter objects - Spectrograph visualization

- Pfft~: Turn signal into frequency domain to plot spectrograph
- Jit.matrix: eg. convolution kernel matrix
- Jit.gen: process the matrix. (eg. To present different shape)
- Jit.gl.gridshape
- Jit.gl.mesh: used to create 3D surface using jit.matrix as input
- Attrui: inspect attribute values of an jitter object, such as the color and position



Digital Healing Synthesizer



Envelope

clear

Modulator

clear

Reverb

clear

LFO Rate

LFO Depth

Roomsize

Revtime



0.10 ms



0



0



0

Musical Preset

store

store



Mod

Harmonic

Damping



0



0



0.00

Key Gain



Solfeggio Frequency Slider

clear



374 Hz



285 Hz



396 Hz



417 Hz



528 Hz



639 Hz



741 Hz



852 Hz



963 Hz

Thank you!