ChatGPT

{ "song": { "title": "Ultralight Beam", "artist": "Kanye West", "year": 2016, "genre": "Hip hop / gospel" }, "global_tags": ["hip-hop", "gospel", "2010s", "spiritual", "uplifting", "choir", "lush", "airy", "reverberant", "warm"], "sections": { "verse": { "intent": "Deliver Chance the Rapper's dexterous, forceful verse with clarity and presence, keeping his vocal upfront and intelligible.", "chain": [{ "plugin": "Parametric EQ (HPF)", "stage": "cleanup", "key_params": { "cutoff_freq": 80, "slope": "12dB/oct" }, "param_why": { "cutoff_freq": "removes low-end rumble and plosives below about 80 Hz to prevent muddiness", "slope": "moderately steep slope to clean up sub-bass without thinning the vocal too much" }, "why": "High-pass filter to eliminate rumble/boom and ensure the rap vocal remains clean in the low frequencies" }, { "plugin": "FET Compressor (1176-style)", "stage": "dynamics", "key_params": { "attack": "1-5ms", "release": "50ms", "ratio": "4:1", "gain_reduction": "~5dB" }, "param_why": { "attack": "fast attack (~1-5 ms) to clamp down on transient peaks (like loud consonants) quickly", "release": "fast release (~50 ms) so the compressor recovers between syllables, keeping the vocal energy", "ratio": "moderate 4:1 ratio to tame peaks without excessive pumping", "gain_reduction": "catches loud peaks with about 5 dB of reduction, controlling dynamics while preserving punch" }, "why": "First-stage compressor to tame sudden spikes in the vocal (maintaining consistent level while preserving the verse's energy)" }, { "plugin": "Optical Compressor (LA-2A-style)", "stage": "dynamics", "key_params": { "attack": "10ms", "release": "300ms", "ratio": "4:1", "gain_reduction": "~3dB" }, "param_why": { "attack": "slower attack (~10 ms) to let initial transients through before applying compression", "release": "moderate release (~300 ms) for smooth gain recovery, leveling the voice gradually", "ratio": "around 4:1 for gentle leveling so the compression remains transparent", "gain_reduction": "about 3 dB of compression to even out the overall level without obvious pumping" }, "why": "Second-stage compressor to even out the vocal performance and add smoothness after the fast compressor has tamed the peaks" }, { "plugin": "Parametric EQ", "stage": "tone", "key_params": { "cut_220Hz": -3, "boost_5kHz": 2, "high_shelf_12kHz": 3 }, "param_why": { "cut_220Hz": "reduces muddiness in the low-mids by about 3 dB at ~220 Hz, clearing space for a cleaner vocal tone [1]", "boost_5kHz": "adds ~2 dB around 5 kHz to bring out vocal presence and intelligibility so lyrics are clear", "high_shelf_12kHz": "gently boosts high 'air' frequencies (12 kHz) by ~3 dB to add brightness and polish [1]" }, "why": "Shaping EQ to remove mud and enhance clarity/brightness, ensuring the rap cuts through the mix" }, { "plugin": "De-Esser", "stage": "cleanup", "key_params": { "freq": "7kHz", "gain_reduction": "~4dB" }, "param_why": { "freq": "targets the sibilance range (around 7 kHz) to detect harsh 'S' and 'T' sounds", "gain_reduction": "reduces sibilant peaks by roughly 3–5 dB, smoothing out harsh consonants without dulling the vocal" }, "why": "To tame excessive sibilance brought out by the EQ and compression, keeping the verse vocal smooth on \"ess\" sounds [2]" }, { "plugin": "Stereo Delay", "stage": "space", "key_params": { "time_ms": 571, "feedback_pct": 15, "mix_pct": 10 }, "param_why": { "time_ms": "sets delay time ~571 ms (about a quarter-note at the song tempo) to echo phrases in time with the beat [3]", "feedback_pct": "low feedback (~15%) so only a couple of repeats occur, preventing a clutter of echoes", "mix_pct": "blended around 10% wet so the delay effect is subtle and tucked behind the main vocal" }, "why": "Adds a subtle echo to certain words for emphasis (a classic throw effect), enhancing the sense of space without distracting from the rap [3]" }, { "plugin": "Plate Reverb", "stage": "space", "key_params": { "type": "plate", "decay": "1.5s", "pre_delay": "10ms", "mix_pct": 10 }, "param_why": { "type": "plate reverb chosen for its bright, short tail that flatters vocals", "decay": "~1.5 s decay gives a short ambience that adds space but doesn't wash out fast rap phrases", "pre_delay": "10 ms pre-delay to keep the vocal articulation clear before the reverb tail kicks in", "mix_pct": "around 10% wet — a subtle amount to avoid pulling the rap out of the forefront" }, "why": "Adds a slight ambient tail to the vocal to prevent dryness, while keeping the verse sounding upfront and immediate" }] }, "chorus": { "intent": "Create a spacious, \"heavenly\" vocal tone for the melodic chorus, with smooth dynamics and lush reverb that emphasize the song's gospel ambiance.", "chain": [{ "plugin": "Parametric EQ (HPF)", "stage": "cleanup",

"key_params": { "cutoff_freq": 100, "slope": "12dB/oct" }, "param_why": { "cutoff_freq": "removes deep rumble/bass below ~100 Hz to reduce mud from the vocal (no useful musical content that low)", "slope": "12 dB/octave roll-off to clean the lows while preserving warmth in the vocal's low end" }, "why": "High-pass filtering to ensure the chorus vocal (sung) doesn't carry unnecessary low frequencies that could clash with the bass" }, { "plugin": "Pitch Correction (Auto-Tune)", "stage": "creative", "key_params": { "retune_speed": "medium (25)", "key": "C minor" }, "param_why": { "retune_speed": "set to a moderate speed so pitch is corrected gently—audible enough for a modern effect but still natural", "key": "configured to C minor (song's key) so that the vocal stays in scale with the chord progression [4]" }, "why": "Subtle Auto-Tune on the sung chorus lines to tighten the pitch and add a slight modern texture to the vocal (a common West aesthetic)" }, { "plugin": "Parametric EQ", "stage": "tone", "key_params": { "cut_300Hz": -2, "boost_5kHz": 2, "high_shelf_10kHz": 3 }, "param_why": { "cut_300Hz": "cuts ~2 dB around 300 Hz to reduce muddiness or boom in the vocal, especially during louder notes", "boost_5kHz": "adds ~2 dB around 5 kHz for presence, helping the vocal articulate clearly over the lush instruments", "high_shelf_10kHz": "adds ~3 dB of high-frequency \"air\" to give the vocal a bright, open top end suited to a heavenly gospel feel" }, "why": "Tone shaping to remove any wooly mid frequencies and enhance clarity/air, giving the chorus vocal a pristine and angelic quality" }, { "plugin": "FET Compressor", "stage": "dynamics", "key_params": { "attack": "3ms", "release": "50ms", "ratio": "4:1", "gain_reduction": "~5dB" }, "param_why": { "attack": "fast (~3 ms) to quickly tame any sudden peaks from strong sung notes", "release": "fast release (~50 ms) so that compression relaxes between syllables, preserving musical dynamics", "ratio": "4:1 ratio to smooth out louder parts without sounding pumping", "gain_reduction": "about 5 dB reduction on peaks, controlling dynamics (especially on powerful belts) to avoid jarring volume jumps" }, "why": "Initial compressor to control the dynamic range of the chorus vocals (catching loud moments) while keeping them sounding energetic and consistent" }, { "plugin": "Tube Saturation", "stage": "tone", "key_params": { "drive": "moderate (4/10)", "mix": "100%" }, "param_why": { "drive": "driving the saturator moderately to generate subtle harmonic distortion, adding warmth", "mix": "100% wet to fully apply the saturation effect to the vocal signal, as it's being used inline for color" }, "why": "To add analog warmth and slight harmonic richness to the chorus vocal, enhancing its emotional warmth and helping it cut through the dense mix" }, { "plugin": "Optical Compressor", "stage": "dynamics", "key_params": { "attack": "10ms", "release": "300ms", "ratio": "3:1", "gain_reduction": "~3dB" }, "param_why": { "attack": "moderate (~10 ms) attack to allow a touch of the vocal’s natural onset through before compressing", "release": "around 300 ms release to smoothly level out the tail of sustained notes and transitions", "ratio": "gentle 3:1 ratio for transparent leveling, to avoid obvious compression artifacts", "gain_reduction": "light compression (~3 dB of reduction) to fine-tune level consistency after the first compressor and saturation" }, "why": "Secondary compression to lightly level the vocal after saturation, ensuring the chorus lines stay smooth and controlled throughout" }, { "plugin": "De-Esser", "stage": "cleanup", "key_params": { "freq": "7kHz", "gain_reduction": "~4dB" }, "param_why": { "freq": "targets around 7 kHz where sibilance (\"S\" sounds) and harsh consonants reside in the sung vocal", "gain_reduction": "reduces those frequencies by about 4 dB on hits, softening any piercing sibilants that were enhanced by the EQ and saturation" }, "why": "Tames sharp \"S\" and \"T\" sounds in the chorus vocal, which may be exaggerated by bright EQ and saturation, keeping the vocal smooth" }, { "plugin": "Hall Reverb", "stage": "space", "key_params": { "type": "Large Hall", "decay": "3s", "pre_delay": "30ms", "mix_pct": 25 }, "param_why": { "type": "Large hall reverb to simulate a big, church-like space around the vocal", "decay": "long ~3 s decay to create a lush, lingering tail that gives a grand ambience [5]", "pre_delay": "30 ms pre-delay so the vocal's clarity isn't lost; the reverb onset is slightly delayed to let the words cut through", "mix_pct": "approximately 25% wet, making the reverb quite prominent to achieve a soaring, ethereal quality without drowning the direct vocal" }, "why": "Envelops the chorus vocals in a spacious reverb, reinforcing the gospel atmosphere (big, heavenly space) and blending the vocal with the choir and instruments" }] }, "background_vocals": { "intent": "Provide a lush, wide backdrop of gospel choir harmonies, glued together and drenched in reverb, to elevate the song's spiritual atmosphere while staying

behind the lead vocals.", "chain": [{ "plugin": "Parametric EQ (HPF)", "stage": "cleanup", "key_params": { "cutoff_freq": 150, "slope": "12dB/oct" }, "param_why": { "cutoff_freq": "filters out very low frequencies (below ~150 Hz) that are unnecessary in the choir, preventing rumble build-up from multiple voices", "slope": "12 dB/octave to remove sub-bass cleanly while retaining the fullness of the choir's lower harmonies" }, "why": "High-pass filtering the choir bus to avoid muddy low-end accumulation, ensuring the background vocals don't cloud the mix's bass region" }, { "plugin": "Parametric EQ", "stage": "tone", "key_params": { "cut_500Hz": -3, "cut_3kHz": -2, "boost_10kHz": 2 }, "param_why": { "cut_500Hz": "cuts ~3 dB at 500 Hz to reduce any boxy or muddy buildup from multiple voices, clearing the midrange", "cut_3kHz": "a small ~2 dB dip around 3 kHz to pull back harsh presence, so the choir doesn't compete with lead vocal intelligibility", "boost_10kHz": "adds ~2 dB of 'air' around 10 kHz to give the choir a slight shimmer, helping it sound plush and open in the mix [6] " }, "why": "Tonal balancing of the choir: scooping out muddiness and a bit of mid presence for blend, while adding a hint of brightness so the choir feels lush but not overpowering" }, { "plugin": "Bus Compressor (VCA)", "stage": "dynamics", "key_params": { "attack": "20ms", "release": "100ms", "ratio": "4:1", "gain_reduction": "~6dB" }, "param_why": { "attack": "medium (~20 ms) attack to let the initial onset of choir phrases through for naturalness before compression engages", "release": "about 100 ms release to smoothly adjust level as the choir sings sustained notes, maintaining a steady output", "ratio": "4:1 ratio to apply firm but musical glue, binding all the choir voices together as one unit", "gain_reduction": "around 6 dB of gain reduction on peaks to tame dynamic swells (so no single voice sticks out) and achieve a cohesive choir sound" }, "why": "Group compression to 'glue' the ten-piece choir together and control dynamics, ensuring the choir remains smooth and supports the lead without sudden loud bursts [6] " }, { "plugin": "Tape Saturator", "stage": "tone", "key_params": { "drive": "light (3/10)", "mix": "100%" }, "param_why": { "drive": "light saturation to introduce gentle analog tape warmth and slight compression, thickening the choir sound", "mix": "100% applied on the choir bus to color all voices uniformly and add cohesive character" }, "why": "To impart analog warmth and subtle harmonic glue to the choir, smoothing the combined vocals and making them sound rich and cohesive" }, { "plugin": "De-Esser", "stage": "cleanup", "key_params": { "freq": "8kHz", "gain_reduction": "~6dB" }, "param_why": { "freq": "centers around ~8 kHz to catch the sibilance from many voices (multiple \"S\" sounds summing together can be harsh)", "gain_reduction": "reduces sibilant peaks by up to ~6 dB, so the choir's consonants don't become too sharp or prominent" }, "why": "To control collective sibilance of the choir (strong 'S' consonants) that could become piercing when many voices hit those sounds together" }, { "plugin": "Stereo Widener (Microshift)", "stage": "creative", "key_params": { "detune_cents": "±8c", "delay_offset_ms": 15, "mix_pct": 50 }, "param_why": { "detune_cents": "slightly detunes the left vs right channels by a few cents (~8 cents) to create a chorusing effect and widen the stereo image", "delay_offset_ms": "adds a small ~15 ms delay difference between left and right, enhancing the Haas effect for width", "mix_pct": "50% blend so that the widening effect is mixed with the original signal, keeping some center image while significantly expanding the choir's spread" }, "why": "To spread the choir across the stereo field and make it sound expansive. This widener effect creates a large, enveloping choir sound that fills the mix behind the lead vocal" }, { "plugin": "Hall Reverb", "stage": "space", "key_params": { "type": "Church Hall (IR)", "decay": "4s", "pre_delay": "0ms", "mix_pct": 40 }, "param_why": { "type": "a big \"church\" style hall reverb to place the choir in a huge, realistic space", "decay": "very long ~4 s decay to let the choir's harmonies ring out, creating a heavenly sustain behind the music [5] ", "pre_delay": "0 ms pre-delay so the reverb immediately envelops the choir, making them sound distant and blended in the background", "mix_pct": "heavy reverb blend (~40% wet) to fully immerse the choir in ambience, so their sound is expansive and supports the lead vocal from afar" }, "why": "Thick, long reverb to soak the choir and push it back in the mix as a dreamy, atmospheric backdrop, as if recorded in a large church space (emphasizing the song’s spiritual ambiance)" }] }, "adlibs": { "intent": "Treat the ad-libbed vocals (e.g. Kirk Franklin's prayer and other exclamations) so they add emotion and atmosphere without distracting from the main vocals – often by filtering and extra ambience to set them behind the lead.", "chain": [{ "plugin": "Parametric EQ (HPF)", "stage": "cleanup", "key_params":

{ "cutoff_freq": 120, "slope": "12dB/oct" }, "param_why": { "cutoff_freq": "cuts out deep frequencies below ~120 Hz that are not needed in adlibs (to avoid rumble or boom from breaths or handling noise)", "slope": "12 dB/octave for a steady roll-off, removing low-end gently but effectively without making the voice sound thin" }, "why": "High-pass filter to remove low-frequency content from adlib tracks, keeping them clear of rumble and ensuring they don't add muddiness beneath the main vocals" }, { "plugin": "Low-Pass Filter", "stage": "tone", "key_params": { "cutoff_freq": 10000, "slope": "12dB/oct" }, "param_why": { "cutoff_freq": "rolls off the very high frequencies above ~10 kHz, so the adlibs are slightly dulled compared to the lead vocal", "slope": "moderate slope to gently attenuate highs, making the effect subtle (the voice still sounds natural but less bright)" }, "why": "A gentle low-pass filtering to reduce brightness, which pushes the adlib vocals a bit further back in the mix so they don't draw too much attention" }, { "plugin": "Compressor", "stage": "dynamics", "key_params": { "attack": "10ms", "release": "200ms", "ratio": "4:1", "gain_reduction": "~5dB" }, "param_why": { "attack": "around 10 ms attack to catch any sudden loud adlib (or shouted word) fairly quickly while leaving a tiny initial transient for natural feel", "release": "moderate ~200 ms release to smooth out the level over phrases (particularly for a spoken prayer that has varying emphasis)", "ratio": "4:1 ratio to ensure the adlibs stay controlled in level, knocking down louder parts so they remain secondary to the lead", "gain_reduction": "roughly 5 dB reduction on peaks, reining in louder adlib moments to prevent them from jumping out too much" }, "why": "Compression keeps the adlib vocals under control — leveling out their dynamics so they can be heard clearly but never overpower the main vocals" }, { "plugin": "Pan Pot", "stage": "utility", "key_params": { "pan": "-20" }, "param_why": { "pan": "places the adlib slightly off to the side (~20% to the left in this case), creating separation from the lead (which is centered) and giving a stereo spread to the call-and-response elements" }, "why": "Panning the adlibs off-center to keep the focus on the lead vocal in the center, while still allowing the adlib to be audible and distinct in the stereo field" }, { "plugin": "Stereo Delay", "stage": "space", "key_params": { "time_ms": 570, "feedback_pct": 20, "mix_pct": 15 }, "param_why": { "time_ms": "around 570ms (quarter note) echo to repeat certain adlib phrases musically", "feedback_pct": "~20% feedback for a few audible repeats that decay naturally", "mix_pct": "15% wet so the delay effect is audible yet remains in the background, mainly used as a special effect on key lines" }, "why": "Echo effect applied to select ad-lib lines to enhance their emotional impact (for example, repeating a phrase by letting it echo and fade) without cluttering the main vocal" }, { "plugin": "Hall Reverb", "stage": "space", "key_params": { "type": "Large Hall", "decay": "3.5s", "pre_delay": "50ms", "mix_pct": 30 }, "param_why": { "type": "Large hall reverb (same general space as the rest of the vocals) to maintain a cohesive ambience", "decay": "long decay (~3.5s) to give the adlibs a lingering presence in the space, enhancing the emotional weight of the words", "pre_delay": "50ms pre-delay so that the spoken words remain intelligible before the reverberation blooms", "mix_pct": "around 30% wet so the adlibs are clearly in that big space but their direct sound is still discernible enough" }, "why": "Places the adlib vocals in a similar big, reverberant space as the rest of the track (gospel-like ambience), but with enough pre-delay and controlled level so their message adds to the atmosphere without overpowering the mix" }] } }, "confidence": 0.7, "notes": "We do not have an official breakdown of the exact vocal chain for \"Ultralight Beam,\" so the above chain is inferred from the song's style and general practices used by Kanye West's engineers [7] [8]. Mixing engineer Manny Marroquin is known to use multiple stages of EQ, compression, de-essing, and effects on West's vocals [8] – for example, on a previous Kanye track he applied two serial compressors (a fast FET and a slower optical) along with an Avalon EQ boost at 25 kHz for \"air\" and a de-esser to tame sibilance [8]. Our chain mirrors this philosophy: using fast and slow compressors in sequence, boosting high frequencies for openness, and controlling sibilance with de-essers. \n\nBecause \"Ultralight Beam\" is heavily influenced by gospel, we emphasized a spacious, reverberant sound for the chorus and background vocals [9]. Reviews noted the "cavernous" quality of the choir [5] and described the updated mix as making the choir even "plusher" in sound [6] – hence we added a large hall (church-like) reverb and gentle high-frequency boosts to the choir to achieve that lush, heavenly ambiance. The choir and additional vocals are compressed and saturated together to blend them into a unified background pad,

supporting the lead without sudden peaks or harshness.\n\nChance the Rapper's verse has been described as "dexterous and forceful" [10], so we kept the verse vocal chain focused on clarity, punch, and presence. We used tighter EQ cuts and less reverb on the rap, ensuring his rhythmic delivery stays crisp and upfront. A short delay throw on certain words is included as a creative effect (Manny Marroquin often adds ~577 ms delay throws on specific words in Kanye's vocals [3]). \n\nFor the sung chorus (performed by Kanye (with Auto-Tune) and supporting singers), we added pitch correction since West often employs Auto-Tune for stylistic effect. The chorus chain includes heavy reverb to achieve a \"God-like\" spaciousness, matching the song's spiritual theme. We assumed the key of C minor for the Auto-Tune based on song data [4]. Kelly Price's powerful gospel ad-libs (and other background vocals) are drenched in the same large reverb, but also processed with extra compression and filtering to sit behind the lead – this ensures the lead vocal remains the focal point while the choir and ad-libs provide an emotional backdrop. \n\nOverall, these settings are educated estimations. The confidence is moderate (0.7) because while the general techniques align with known practices and the audible result, we lack exact plugin-by-plugin confirmation from the mix session. We based our choices on credible reports of Kanye's vocal mixing techniques [8] and descriptions of the song's sound in reviews [5] [6], but some parameters (like precise frequencies or plugin models) are approximate. The intent was to capture the essence of the "Ultralight Beam" vocal production – a blend of clean, impactful rap verses and ethereal, gospel-infused sung sections – with a realistic chain for an AI mixing assistant.", "sources": ["https://gearspace.com/board/low-end-theory/945717-processing-kanye-west-vocals.html", "https://en.wikipedia.org/wiki/Ultralight_Beam", "https://www.vice.com/en/article/striving-for-perfection-a-trip-through-kanye-wests-shifting-life-of-pablo-mixes", "https://songbpm.com/@kanye-west/ultralight-beam"] }

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[1] [2] [3] [8] processing kanye west vocals - Gearspace
https://gearspace.com/board/low-end-theory/945717-processing-kanye-west-vocals.html

[4] BPM and key for Ultralight Beam by Kanye West | Tempo for Ultralight Beam | SongBPM | songbpm.com
https://songbpm.com/@kanye-west/ultralight-beam

[5] [7] [9] [10] Ultralight Beam - Wikipedia
https://en.wikipedia.org/wiki/Ultralight_Beam

[6] Striving for Perfection: A Trip Through Kanye West's Shifting 'Life of Pablo' Mixes
https://www.vice.com/en/article/striving-for-perfection-a-trip-through-kanye-wests-shifting-life-of-pablo-mixes/