

# Fancyyyy – K-Accumulator Digital Complex Oscillator

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## K-ACCUMULATOR modulation ideas for distorted percussion, basslines, and haunted pads

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K-ACCUMULATOR is unusually rich because it is not just “an oscillator with some FM.” It is a whole internal ecosystem:

- main OSC with multiple waveshaping domains
- Mod oscillator for PM/XPM behavior
- UFG as envelope/LFO/audio oscillator
- $\Delta$ - $\Sigma$  pattern generator for stepped/smoothed modulation
- internal normalised routing to many CV inputs

That means the best sounds usually come from **stacking small modulations in several places at once**, not maxing one knob.

A useful mindset:

1. Start from **Centre**
2. Choose a **Morph mode**
3. Pick one internal mod source:
4. **UFG** for organic motion, envelopes, pulses
5.  **$\Delta$ - $\Sigma$**  for stepped instability and evolving sequences
6. Add one external CV if desired
7. Use **Stretch** and **Damped/Pulsar** as “make it strange” controls

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## First: the best general modulation strategies

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### 1. Use the internal normalisations aggressively

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On the OSC section, the CV inputs/attenuverters are internally normalised from either:

- **UFG** when the LED is unlit
- **$\Delta-\Sigma$**  when the LED is lit

So even without patching cables, you can modulate:

- Shift
- Depth
- Shape
- Morph
- 1V/TZ

This is the fastest way to find complex timbres.

#### Great default trick

- Set **one waveshaper attenuverter positive**
- Set **another slightly negative**
- Feed one from **UFG**
- Feed the other from  **$\Delta-\Sigma$**

This creates counter-motion inside the oscillator, which often sounds much more alive than moving everything in the same direction.

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## 2. Morph slowly, shape quickly

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The Morph system is continuous, but the character of the controls changes depending on which path you're on.

## Best approach

- Use **Morph** as a slow macro movement
- Use **Shift/Depth/Shape** as faster or performance controls

This works because: - Morph changes the topology - Shift/Depth/Shape exploit the current topology

For performance, try: - slow  $\Delta$ - $\Sigma$  or UFG to Morph - manual performance on Depth and Shape - light modulation on Shift

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## 3. Use small modulation depths first

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This module seems designed so that **small amounts of modulation can produce large spectral changes**. Especially in:

- XPM / XPM2
- FBPM2
- high Damped/Pulsar settings
- high Stretch with active shaping

For punchy results: - keep attenuverters around 9–10 o'clock or 2–3 o'clock first - only push further once the base patch is good

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## Best Morph modes by sound goal

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### For distorted percussion

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Best starting modes:

- **FBPM**: stable, clear, sine-to-saw distortion
- **2OP**: controlled mod-oscillator aggression
- **FBPM2**: chaotic and nasty
- **Asym**: brittle, granular, clicky, unusual

## For dubstep / DnB bass

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Best starting modes:

- **XPM**: filthy but still playable
- **XPM2**: more separated controls, highly designable
- **2OP2**: good for “speaking” basses
- **FBPM** with Stretch: great for reese-adjacent spectral tearing

## For haunted pads

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Best starting modes:

- **FMNT**: formant-like, vocal, airy
- **2OP**: smooth animated harmonic motion
- **Asym**: eerie and unstable if used gently
- **XPM** at low depth: slowly evolving spectral bloom

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# Distorted percussive sounds

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These patches lean on **UFG as envelope/pulse source** and **Damped/Pulsar** for internal sync/amplitude shaping.

## Patch idea 1: metallic distorted kick / tom

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### Goal

A low fundamental with a sharp distorted transient and internal pitch snap.

### Setup

- Start from **Centre**
- Route **Root to OSC**
- Set OSC frequency low
- Set Morph to **FBPM** or **2OP**

- Turn up **Damped/Pulsar** to medium-high
- Set **UFG Time** to sub-audio, single-shot or looping slowly
- Use **raised cosine or exponential-ish UFG shape**
- Add a bit of **Depth**
- Add a little **Shape**
- Keep **Stretch** low at first

## Modulation ideas

- Send **UFG to 1V/TZ** with positive attenuverter for a pitch envelope
- Send **UFG to Depth** lightly for attack-only distortion bloom
- Send  **$\Delta-\Sigma$  to Shape** very lightly for changing attack character each hit

## Why it works

- Damped/Pulsar gives sync plus AM, making the transient more percussive
- 1V/TZ from UFG gives the classic downward pitch strike
- FBPM/2OP gives controlled harmonic smear without losing impact

## Push it further

- In **2OP**, tune Mod to a non-octave harmonic
- Add slight **Detune**
- Increase **Shape**
- Add a touch of **Stretch** for weird overtone tearing while preserving low pitch

This can move from kick/tom into broken industrial drum territory.

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# Patch idea 2: snare / clap / noise-burst style percussion

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## Setup

- Morph to **Asym** or **FBPM2**
- Root/OSC in midrange
- UFG in triggered one-shot mode
- **Damped/Pulsar** high
- **Depth** medium
- **Shape** medium to high
- **Shift** low to medium

## Modulation ideas

- UFG to **Damped/Pulsar CV** if available externally, or just perform manually
- $\Delta-\Sigma$  to **Morph** lightly
- $\Delta-\Sigma$  to **Shift** or **Shape**
- Mod oscillator tuned to inharmonic interval with slight detune

## Result

You'll get: - noisy broadband crack - unstable upper harmonics - changing "snare wires" texture if  $\Delta-\Sigma$  is moving Shape or Morph

## Performance move

Shorten UFG Time and increase Damped/Pulsar toward max: - lower values = papery percussion - higher values = hard synced tearing snap

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## Patch idea 3: glitch hats and digital shards

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### Setup

- High OSC frequency
- Morph in **Asym**, **XPM2**, or **FBPM2**
- UFG as high-speed trigger or audio-rate modulator
- Very little low end
- Shape and Shift active
- Stretch moderate

### Modulation ideas

- $\Delta$ - $\Sigma$  to **1V/TZ** for stepped micro-pitch chatter
- UFG to **Depth**
- Morph lightly modulated
- Mod tracking OSC, harmonic above center, Order biased toward odd harmonics

### Why it works

At high frequencies, the PM/folding/stretch interactions create hat-like sidebands and digital splatter.

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## Dubstep / drum & bass basslines

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K-ACCUMULATOR seems excellent for bass because it can keep a strong root while heavily altering upper harmonics.

### Core bass design principle

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For basses, start by protecting the fundamental:

- Keep the fundamental low and stable
- Use **Stretch** to move harmonics while keeping the root

- Use **Shift** for harmonic blending
  - Use **Depth/Shape** for aggression
  - Use **Morph** and Mod tuning for vowel/talking motion
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## Patch idea 4: modern talking neuro bass

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### Setup

- Start from Centre
- Route **Root to OSC**
- Quantize if you want a playable scale
- Morph to **XPM** or **XPM2**
- Tune main OSC low
- Set Mod to track **OSC**
- Harmonic above center, around 2nd–5th harmonic region
- Add slight **Detune**

### Sound design

- **Depth** = PM intensity
- **Shape** = extra fold or XPM index depending on mode
- **Shift** = harmonic emphasis / damping depending on mode
- **Stretch** = medium

### Modulation

- $\Delta$ - $\Sigma$  to **Morph** lightly
- **UFG** to **Shift** or **Shape**
- $\Delta$ - $\Sigma$  to **1V/TZ** for sequenced pitch
- Use **Scale quantisation** for locked riffs
- Set **Q.Trig on** with Root tracking and scale active for auto-arpeggiated behavior

### Best movement recipe

- slow UFG to one timbre axis

- stepped  $\Delta-\Sigma$  to another
- manual performance on Morph

This gives the classic “talking / yawing / barking” bass behavior.

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## Patch idea 5: reese-ish tearing bass

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### Setup

- Morph to **FBPM**, **2OP**, or **XPM**
- Low OSC frequency
- Mod tracks OSC
- Harmonic set close to fundamental or low harmonic
- **Detune** slightly off center
- **Depth** medium
- **Shape** low-medium
- **Stretch** medium-high

### Why this is strong here

Detune affects both: - Mod oscillator relationship - harmonic wavefolder animation

That means one control can create moving internal beating and tearing.

### Modulation ideas

- Slow UFG to **Detune** externally if possible
- $\Delta-\Sigma$  to **Stretch** or **Shape**
- UFG to **Depth**
- external slow LFO to Morph

### Character

- mild detune = thick reese
- more stretch = spectral ripping
- more depth = aggressive, metallic edge

- morph toward XPM = more vocal and unstable
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## Patch idea 6: wobble bass that avoids sounding generic

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Instead of only modulating filter cutoff externally, use the internal structure.

### Setup

- Morph in **2OP2** or **XPM2**
- Root to OSC
- Mod tracks OSC
- Set a useful harmonic relation
- Damped/Pulsar low to medium
- Stretch medium
- Shape medium

### Modulation routing

- UFG looping in tempo-synced LFO range
- UFG to **Depth**
- UFG or  $\Delta-\Sigma$  to **Morph**
- opposite-polarity modulation to **Shift**
- $\Delta-\Sigma$  to **1V/TZ** for phrase movement

### Trick

Use **Skew** and **Shape** on the UFG to alter how the wobble feels: - ramp = aggressive forward lurch - triangle/linear = even sweep - raised cosine = rounded breathing - exponential = punchy “grab”

This makes the bass movement feel less like a standard LFO/filter wobble and more like spectral articulation.

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# Patch idea 7: sub bass with violent top layer

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## Setup

- Keep OSC tuned low
- Use moderate **Depth**
- Low-medium **Shape**
- Moderate-high **Stretch**
- Morph in **FBPM** or **2OP**
- Damped/Pulsar low

## Modulation

- $\Delta-\Sigma$  to **Shift**
- UFG to **Shape**
- very light Morph modulation
- quantized pitch via Root/Scale

## Why it works

Stretch can move harmonics while keeping the fundamental stable, which is perfect for bass music where the sub must stay anchored while the top end mutates.

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# Haunted atmospheric pads

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This module is stereo by design at the main sine/cosine outputs, so it should excel at spatial pads.

## Main pad strategy

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For pads: - use the stereo sine/cosine outs as a pair - keep modulation slow - use small modulation amounts - let several parameters drift independently - avoid too much Damped/Pulsar unless you want tremolo/pulsar texture

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## Patch idea 8: ghost choir pad

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### Setup

- Start at Centre
- Morph to **FMNT**
- Root to OSC and maybe UFG too
- Tune to low-mid register
- Depth low-medium
- Shift low
- Shape low-medium
- Stretch low

### Modulation

- UFG looping slowly
- UFG to **Depth**
- $\Delta-\Sigma$  smoothed and very light to **Morph**
- $\Delta-\Sigma$  or slow external CV to **Shift**
- Mod oscillator tuned to a consonant ratio or scale degree

### Why it works

FMNT uses raised-cosine AM and PM to create formant-like spectra, so small modulations create vocal/choir movement without needing filters.

### Extra haunting move

Use **Just Intonation** scales and scan scale choices around center/right side for less familiar harmonic spacing.

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## Patch idea 9: drifting horror pad

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### Setup

- Morph to **Asym** or low-depth **XPM**
- Main pitch fairly low
- Mod tracks Root or OSC
- Harmonic set to a strange interval
- Detune slightly off center
- Stretch low-medium
- Damped/Pulsar very low or off

### Modulation

- $\Delta-\Sigma$  clocked slowly by UFG
- Increase **Smooth** on  $\Delta-\Sigma$  so it glides
- Route  $\Delta-\Sigma$  to **Morph** and/or **1V/TZ** lightly
- Route UFG to **Shape** with shallow amount
- Use negative modulation on one parameter and positive on another

### Result

- unstable harmonic fog
- slight melodic drift
- quasi-organic spectral breathing
- eerie tonal asymmetry

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## Patch idea 10: pulsar-cloud ambient wash

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### Setup

- Morph to **FMNT** or **2OP**
- UFG in looping mode at slow to medium rate
- **Damped/Pulsar** medium-high
- OSC in mid register

- Shape low-medium
- Depth low-medium

## Modulation

- Use UFG as the pulsar window via Damped/Pulsar
- Slowly modulate **UFG Shape** and **Skew**
- $\Delta-\Sigma$  to **Morph** lightly
- $\Delta-\Sigma$  Smooth above halfway for flowing transitions
- Stretch a little to separate upper harmonics from the root

## Why it works

The manual explicitly describes UFG as: - modulation source - pulsar window generator - clock for  $\Delta-\Sigma$

When all three are linked, you get self-coherent motion that feels composed rather than random.

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# Specific advanced tricks

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## 1. Use Q.Trig for self-generating rhythmic bass/arps

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If: - Root is routed to OSC - a scale is enabled - Q.Trig is active

then a trigger is sent to UFG whenever oscillator frequency crosses a quantizer threshold.

### Try this

- Patch an LFO or  $\Delta-\Sigma$  into **1V/TZ**
- Set **Damped/Pulsar** high
- Put UFG in non-looping mode

Now pitch movement can generate rhythmic triggers/envelopes internally.  
This is great for: - bubbling bass sequences - auto-arpeggiation - semi-chaotic percussion

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## 2. Use external audio into Ext. Sync/Track

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The external input can do: - sync - pitch tracking

### Creative uses

- Feed a drum loop, voice, or another oscillator
- In **Track** mode, the OSC follows incoming pitch but keeps its own timbre system
- Then use Morph/Depth/Shape/Stretch on that tracked pitch

This can make: - voice-following demonic drones - bass that tracks external riffs but becomes alien - percussion locked to another sound source's motion

For haunted material, feed vocals or field recordings with pitch content.

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## 3. Audio-rate UFG modulation

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The UFG tracks into audio rate and has anti-aliased output.

### Try

- set UFG to audio rate
- route it internally to Shift, Depth, Shape, or 1V/TZ
- use small attenuation

This will add a more “synth-operator” quality than simple LFO motion: - buzzy bass articulation - metallic percussion - animated formants in pads

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## 4. $\Delta-\Sigma$ as both sequencer and timbre source

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The  $\Delta-\Sigma$  is more interesting than a normal random sequencer because: - it derives from delta-sigma encoding of Mod - has non-destructive mutation - can be stepped or smoothed - behaves differently at audio rates

### Good uses

- to **1V/TZ** for riffs
- to **Morph** for evolving timbral structure
- to **Shape** or **Shift** for note-by-note articulation changes

### Best trick

Lock a good sequence with **Chance at minimum**, then: - raise Chance temporarily for mutations - drop it back to restore the original

This is perfect for live basslines: controlled chaos with a reset point.

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## Practical recipe sets

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### Recipe A: distorted industrial kick

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- Morph: FBPM
  - OSC low
  - UFG: one-shot, fast decay shape
  - UFG → 1V/TZ positive
  - UFG → Depth slight
  - Damped/Pulsar: medium-high
  - Shape: low-medium
  - Stretch: low
  - Optional  $\Delta-\Sigma$  → Shape tiny amount
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## Recipe B: snarling neuro bass

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- Morph: XPM2
- Mod tracks OSC
- Harmonic: 2nd–4th region
- Detune: slight
- Depth: medium-high
- Shift: low-medium
- Shape: medium
- Stretch: medium
- $\Delta$ - $\Sigma$  → Morph
- UFG → Depth or Shift
- Root scale quantized for riffs

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## Recipe C: reese with spectral tear

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- Morph: 2OP or FBPM
- Mod tracks OSC
- Harmonic near fundamental
- Detune slightly off center
- Depth medium
- Shape low
- Stretch medium-high
- slow UFG to Shape
- slow  $\Delta$ - $\Sigma$  to Shift
- external saturation after module if desired

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## Recipe D: haunted choir

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- Morph: FMNT
- stereo outs to reverb
- Depth low-medium
- Shape low
- Shift low
- slow UFG → Depth

- smoothed  $\Delta-\Sigma$  → Morph tiny amount
  - JI scale selected
  - slight Detune
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## Recipe E: broken alien hats

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- Morph: Asym or FBPM2
  - OSC high
  - Damped/Pulsar high
  - UFG triggered quickly
  - Shape medium-high
  - Shift medium
  - $\Delta-\Sigma$  → 1V/TZ tiny
  - Mod high harmonic with odd spread
  - Stretch moderate
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## Best control interactions to explore

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### Shift + Stretch

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This is one of the most unique pairings on the module.

- **Shift** introduces blended harmonic frequency shifting
- **Stretch** frequency-shifts generated harmonics while holding the fundamental

Use this for: - basses with stable sub and moving top - metallic percussion  
- widening, detuned-feeling pads without destabilizing pitch

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## Depth + Shape

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Usually the most immediate “distortion pair.”

- **Depth** often introduces PM with damping
- **Shape** often introduces harmonic wavefolding

Use: - more Depth for internal pressure/aggression - more Shape for visible folds/edges

On percussion: - modulate Depth with UFG envelope - leave Shape more static

On bass: - modulate Shape slowly - play Depth manually

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## Damped/Pulsar + UFG Time/Shape/Skew

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This is your secret weapon for percussive and animated sound.

- Time = rate or envelope length
- Shape = contour character
- Skew = asymmetry/pulse geometry
- Damped/Pulsar = how much that contour invades the OSC

This can create: - kicks - plucks - tremolo clouds - hard-sync tearing - pseudo-granular pulses

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## Harmonic + Order + Detune on Mod

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This cluster determines how “intelligent” the mod oscillator relationship feels.

### Suggestions

- **Order near center:** more blended harmonic behavior
- **Order toward odd/even:** more selective overtone families
- **Order max:** scale-locked or integer-ratio behavior

- **Detune slight:** movement and growl
- **Detune larger:** instability and tearing

Excellent for bass and evolving pads.

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# If I were patching it for your three goals

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## 1. Distorted percussion starter patch

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- Morph: FBPM2
- OSC: low-mid
- UFG: triggered one-shot
- Damped/Pulsar: 2–4 o'clock
- UFG to 1V/TZ positive
- UFG to Depth slight
- $\Delta$ - $\Sigma$  to Shape tiny
- Mod detuned inharmonically

## 2. Dubstep / DnB bass starter patch

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- Morph: XPM2
- Root quantized
- $\Delta$ - $\Sigma$  to 1V/TZ
- UFG looped in tempo
- UFG to Shift
- $\Delta$ - $\Sigma$  to Morph
- Stretch up until the top starts talking
- Shape to taste
- Detune slightly off center

## 3. Haunted pad starter patch

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- Morph: FMNT

- stereo outs hard left/right
  - UFG slow looping
  - UFG to Depth light
  - smoothed  $\Delta$ - $\Sigma$  to Morph very light
  - Shift barely on
  - Shape barely on
  - JI scale
  - huge reverb after
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## Final advice

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K-ACCUMULATOR seems to reward this exact workflow:

1. Return to **Centre**
2. Pick a **Morph mode** for the general voice
3. Add **one** shaper
4. Add **one** modulation source
5. Add **Stretch**
6. Add **Damped/Pulsar**
7. Only then start moving Mod harmonic relationships

That order tends to preserve intention while still getting into wild territory.

If you want, I can also turn this into: - a **cheat sheet by panel section - 10 exact knob-position patches** - or a **performance-oriented patch guide** for techno / dubstep / ambient sets.

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