

## Book Recommendation: PATCH & TWEAK (by K. Bjørn/ C. M.)

After the success of the synthesizer book PUSH TURN MOVE, graphic artist Kim Bjørn has continued to specialize in the publication of high-quality literature (and has since turned this into his main job). The new book PATCH & TWEAK – a cooperation of Kim Bjørn and Chris Meyer – reviews all aspects of modular synthesis – and involves the story of famous electronic musicians.



PATCH & TWEAK is a must-have for all modular enthusiasts. But this book will be of great value even for those among us who do *not* consider themselves as strictly modular musicians. Lying in the nature of modular synthesizers, *all* aspects of analog synthesis are explained in detail (VCO, VCF, VCA, ADSR, LFO, etc.) – knowledge that can be used for every analog synth around the globe.

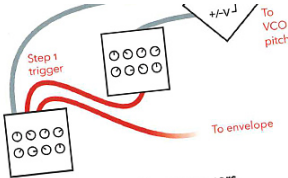


But there's even more: Synchronization, sequencing, performing ... the themes of PATCH & TWEAK seem endless. We recommend this book for every electronic studio.

Finally, a few impressions of PATCH & TWEAK ...







### Sequencers sequencing sequencers

A favorite trick is to use a second sequencer that is clocked by a stage of the main sequencer. This means it changes output at a much slower rate, but in sync with the main sequence.

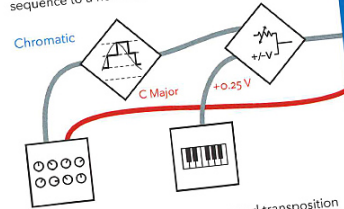
One common application of this is to automate transpositions. Using this trick, the second sequencer can add a chord progression to the main series of notes, just like the examples on the right.

Of course, the second sequence can be altering other parameters, such as glide amount, clock division, filter cutoff, envelope time, etc. Overall, it's a way to take a short, repetitive sequence, and to give it a much longer overall pattern. For example, if both sequencers had eight steps, the result would be a pattern  $8 \times 8 = 64$  steps long.

### Transposing sequences

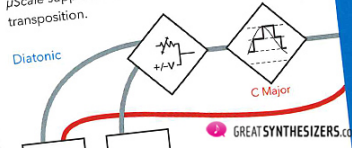
It's easy to transpose a sequencer: You add a voltage to its output, and your VCOs will play a different pitch. However, the order in which you patch your modules has an important effect on the final result.

If you have a quantized or otherwise already-tuned sequence, and use a precision adder to offset its voltage, the result is a 'chromatic' transposition where the same number of semitones are added (or subtracted from) each note. For example, if the original note is a C, and you add  $3/12$  or 0.25 volts to it (three semitones on most modular synths), the result will be a D#. In this way, you transpose the sequence to a new key.



However, if you add the sequence and transposition voltages together before the quantizer, it will round the note to the nearest one in the chosen scale. If you set the quantizer to C Major (all the white keys), and add three semitones to a C, the quantizer won't output a D# (a black key); it will either round it up to E or down to D.

This result is a relative of 'scalar' or 'diatonic' transposition. This technique translates to transposition by the number of 'scale steps' as opposed to semitones. In our example of the key of C Major, transposing up three scale steps would result in an F. Some quantizer modules such as the Intellijel µScale support both chromatic and diatonic transposition.



### Expandable sequencers

Some sequencers have expanders which offer additional options - often more inputs and outputs. In addition to the Ladik S-18x series, there's the Malekko Varigate 4+ below, which can control the Voltage Block. There's also the Orthogonal Devices ER-102 expander for the ER-101, or the Five12 Jack Expander for the Vector Sequencer.



## POINT

thesis

"So I usually start from writing a sequence on my main sequencer, the Indexed Quad Sequencer ER-101 by Orthogonal Devices, and play around with that, usually employing different sequencing techniques, like permutation, random processes, etc. The ER-101 allows you to work with different math operations (arithmetic, geometric, random, jitter) to expand and develop patterns with no limits in the number of steps. It's the brain of my setup, and it's the perfect device to bring structure and repeatability inside the chaotic environments that modular synthesis is usually known for."

In Caterina's experience, the practice on synthesizers contributed to shape her musical thought in many different ways, and, in general, she believes that the design of a machine always affects the compositional design of the music.

"I think that the limits of a machine are actually what define its essence as an instrument and its playability as well. But also - the limits of an instrument are what define, challenge, and develop the essence of a musician and its artistry. For example, the repertoire for classical guitar employs the techniques of arpeggios and the resonance of the harmonics to reinforce the sustenance of the strings, limited by the fast decaying timbres of the strings."

"In my work, Patterns of Consciousness, I took inspiration from those techniques, and I worked in a similar way to overcome the monophonic limits of my instrument. The only sound source I wanted to involve, in fact, was a monophonic oscillator, the Verbo Harmonic Oscillator. But because the sound palette of my instrument was so limited, I had to find a way to hack it and expand its potential. I tried to generate illusions of polyphony by triggering the individual partials of my oscillator differently, carving counterpoint out of the fundamental tone. I also used intricate delay lines, fast tempos, additive syntheses, and wide melodic jumps to further reinforce the polyphonic effects."

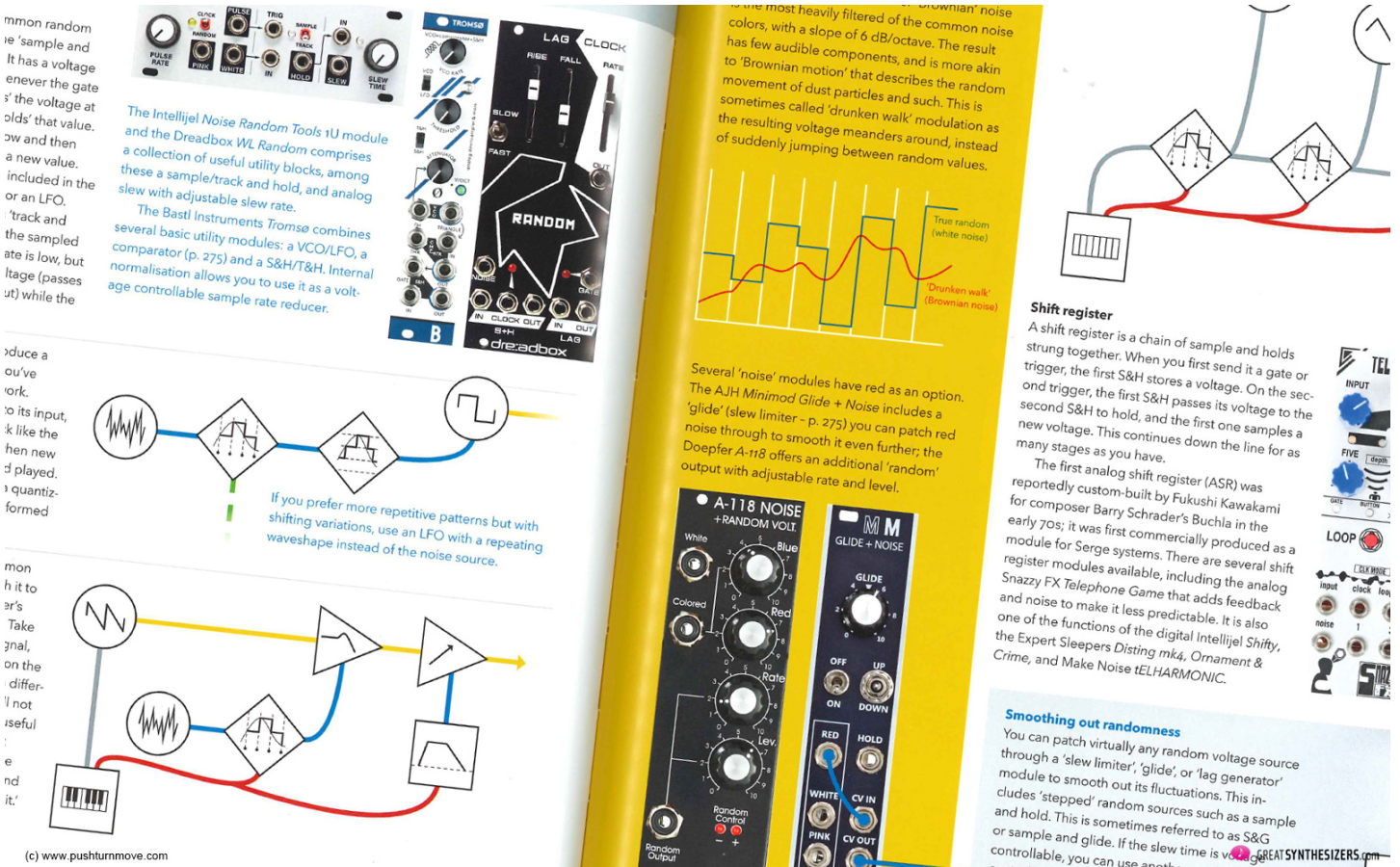
... points out that with a modular you can

poster ... intelligence and object-oriented perception ... sound, through a focus on minimalism. She holds a diploma in classical guitar and a bachelor's degree

Bologna, since ... produced music at Elektronmusikstudien in Stockholm

"Years of classical music training never actually taught me how to listen to sound as my practice on the Buchla did."







|                             |                                             |
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