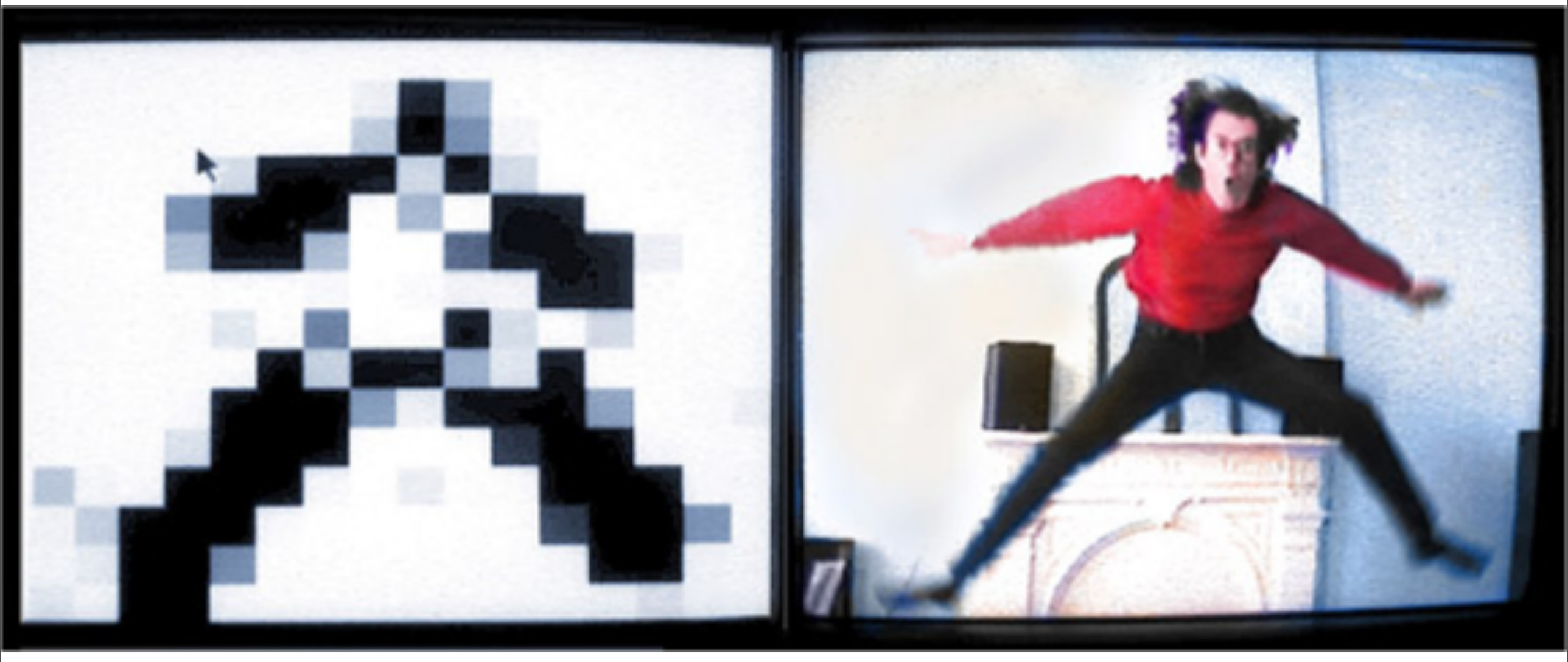
Webcam Instruments

Tim Murray-Browne

Music Hackspace Workshop
25 November 2012
Troyganic, Hoxton

DAVID ROKEBY

Very Nervous System (1982–91)



MEMO AKTEN

Webcam Piano (2010, 2012)

You need...

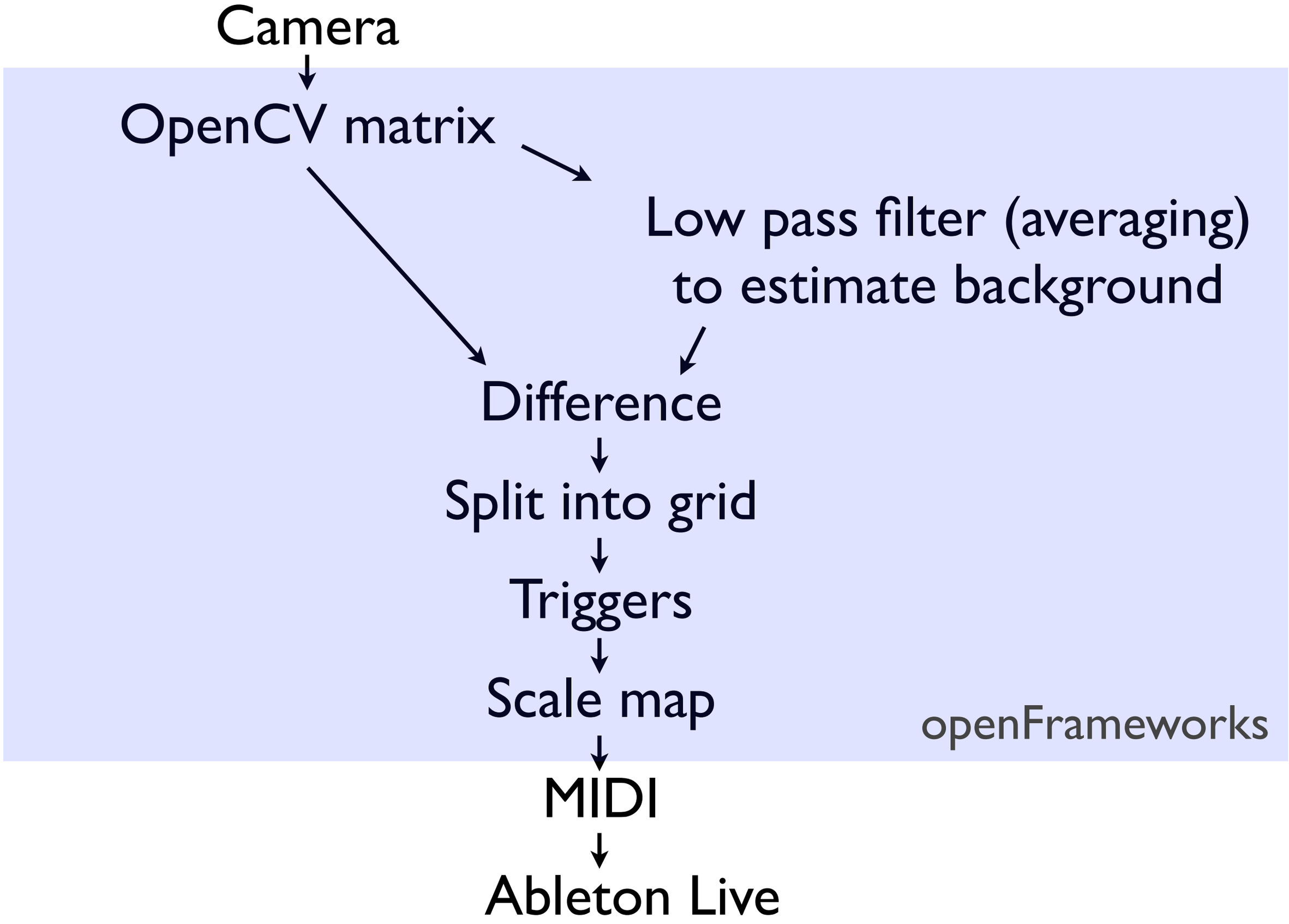
Xcode (Mac) or Visual Studio 2010 Express (Windows)

openFrameworks 0073 — openframeworks.cc

Ableton Live 8 — ableton.com (30 day trial available)

On Windows: Loop Midi — tobias-erichsen.de/software/loopmidi.html

Git — git-scm.com/downloads


Camera
OpenCV matrix
Low pass filter (averaging)
to estimate background
Difference
Split into grid
Triggers
Scale map
openFrameworks
MIDI
Ableton Live

Virtual MIDI

- A Virtual MIDI port allows you to send MIDI data between applications without it leaving the computer
- OS X has one built in called IAC Driver
- Windows users need to use LoopMidi and create a port with the letters IAC in it

tobias-erichsen.de/software/loopmidi.html

Setting up

https://github.com/timmb/WebcamInstruments

clone to <openFrameworks>/apps/workshops/

https://github.com/kylemcdonald/ofxCv

https://github.com/chrisoshea/ofxMidi

ofxGui.zip (included in the WebcamInstruments project above)

clone/unzip to <openFrameworks>/addons/

What does clone mean?

Open Command prompt / Terminal. Navigate to the above folder. Type:

git clone https://github.com/timmb/WebcamInstruments

Windows: *Open* WebcamInstruments.sln

Mac: *Open* WebcamInstruments.xcodeproj

Ideas to try...

- Different instruments and effects in Ableton (check out the Midi effects like Scale and Chord)
- Change colour of triggers to match the note (A, A#, B, etc)
- Create new scale mappings
- Define some continuous parameters and send via MIDI CCs
- Improve triggering algorithm to make it easier to retrigger notes
- (Advanced) Calculate optical flow using `cv::calcOpticalFlowFarneback` to define expressive continuous control on each trigger
- (Advanced) Calculate a fourier transform on each trigger for *Very Nervous System* style control