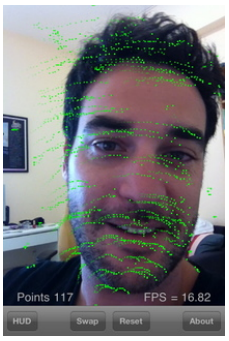
SUCCESS Software Solutions

Mimo!
A motion detection based game for the iPhone

Phonect Published! A motion detection engine for the iPhone (12/10/2011)

Phonect

Lucas-Kanade (LK) Optical Flow for the iPhone - Version 1.0



"*... the Lucas-Kanade method is a widely used differential method for optical flow estimation developed by Bruce D. Lucas and Takeo Kanade. It assumes that the flow is essentially constant in a local neighbourhood of the pixel under consideration...*"

Where Optical Flow is defined as "*the pattern of apparent motion of objects, surfaces and edges in a visual scene caused by the relative motion between an observer and the scene.*"

(Wikipedia excerpts of Lucas-Kanade Optical Flow and Optical Flow respectively.)

After FAST Corner V2.0 performance success, we here at *Success Labs* wanted to see the lkdemo app that comes shipped with OpenCV - i.e. Lucas-Kanade Optical Flow algorithm - run on the iPhone. So now there's an LK app as well, and while a bit slower than FAST Corner, still offers these great features and capabilities:

* Lower FPS than FAST Corner on the same engine, but still reaches real-time (30 FPS) without showing the camera and/or tracking few points
* Rendering using OpenGL
* See tracked points, with or without showing movement trails.
* Control various parameters to affect the algorithm - window size, pyramid level, down sample, camera preset and more!

Some configurations achieve a brilliant 30 FPS, with great looking results. We present the improvements and optimizations done in our forums here.

The app is now available on the AppStore:

Available on the iPhone App Store

Licensing
Opposed to our FAST Corner V2.0, we are offering this project source code free for all commercial or non-commercial use. We will try a donation system this time, so please think of us if we've helped you. (Frankly, we just want to see which method is better for us :))

Source-code for **Lucas Kanade Optical Phone for the iPhone** can be downloaded here.

Please consider donating if this project has helped you:

Below are some example screenshots of the app. Soon we'll feature some movies too!

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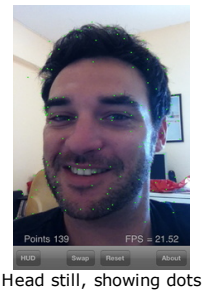
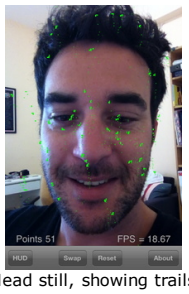
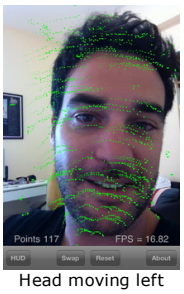
* *Head movement detection:*



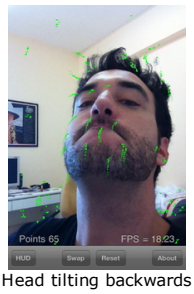
Head still, showing dots



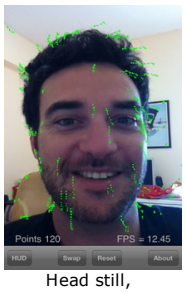
Head still, showing trails



Head moving left



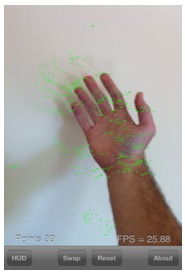
Head tilting backwards



Head still,
camera moving back

* *Hand movement detection:*

Hand still, showing dots

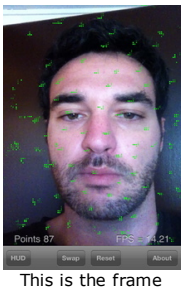


Moving left with
a wavy motion

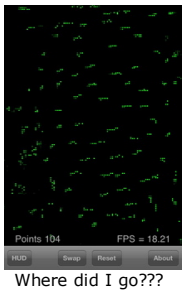
Turning hand around

Moving back right

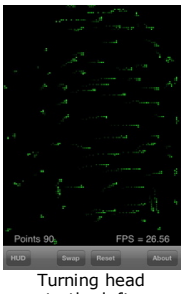
* *Showing only point tracking information:*



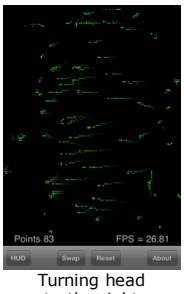
This is the frame
we're taking



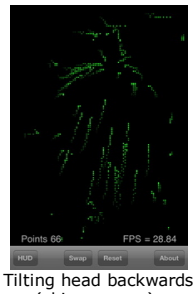
Where did I go???



Turning head
to the left



Turning head
to the right



Tilting head backwards
(chin goes up)