A vertical, close-up photograph of a human eye, rendered in a monochromatic orange and yellow color scheme. The eye is looking slightly to the left, and the eyelashes are clearly visible. The background is a soft, out-of-focus orange.

Tobii test of Eye-tracking Universal Driver by Oleg Špakov

A software layer that allows
programs to be used with different
eye trackers

Tested in July 2010 by Måns Östberg

The ETU-Driver have been developed as a software layer to be used between an actual eye tracker driver and an end-user application to provide device-independent data access and control.

It has been developed by Oleg Špakov (<http://www.cs.uta.fi/~oleg/>) at the University of Tampere in Finland. He has also written several applications that are based on the ETU-driver.

The driver also includes a test application and several filters.

Test details

Test performed 2010-07-06 on ETU-driver version 1.27, released on 2009-08-03. The test was performed on the following equipment:

- Eyetracker: Tobii T60 XL, firmware 1.2.21 (should work on all Tobii eye trackers)
- Computer: FujitsuSiemens laptop LIFEBOOK BS034 (2 GB ram, 2 GHz Intel Core2 T7200 CPU at 2 GHz)
- Operating system: Windows XP service pack 3
- SDK: Based on Tobii SDK version 5.0.3.7. The necessary runtime DDL files are included in the download.

Test results

We have tested the included demo application and it works well. We have not tried to write applications using the ETU-driver.

Overview

The ETU-driver is as a software layer to be used between an actual eye tracker driver and an end-user application to provide device-independent data access and control. The driver includes support for all Tobii Eye Trackers, as well as three different simulators: one mouse simulator, one that generates random eye gaze data and one that simulates previously recorded gaze data files.

There is also a few plug-ins called filters included:

- Eye-mouse: lets you control the mouse cursor with your eyes.
- Fixation detector: Custom fixation detector that replaces the one built in to the eye tracker. Three modes, fixation size, speed and dispersion. Based on a Fixation Detector tool developed by Oleg Špakov.
- Bad quality data detector: This plugin analyzes data samples to detect gaze data quality and shows a warning message if frequent data loss is detected within a defined time window.
- Sync signal: Let's you sync your applications with any kind of parallel data. Uses UDP.
- Thin-out: lets you skip some of the samples, useful if you have an eye tracker with more samples than your application can handle.

Get going

The download includes a standard installation executable. It installs the driver, a testing application, a thorough manual and some code examples for applications using the driver.

The testing application shows the users gaze point. There is also a filter that allows the user to control the mouse cursor, and several other filters. Amongst them is a filter that allows the user to select other fixation filters. To configure settings and filter start the application "ETU-driver Test", and select "Options" from the "Tracking" menu. On the "Device" tab you can select which eye tracker Device you have, or one of several simulators. "Tobii 3" is for the T/X series of eye trackers, "Tobii 2" is for older eye trackers. When you've selected the right device press the "Device and API-Converter options..." to configure your eye tracker.

On the "Filter" tab you can select what filters you like to use and configure them.



Picture 1 - settings



Picture 2- Tobii 2 settings

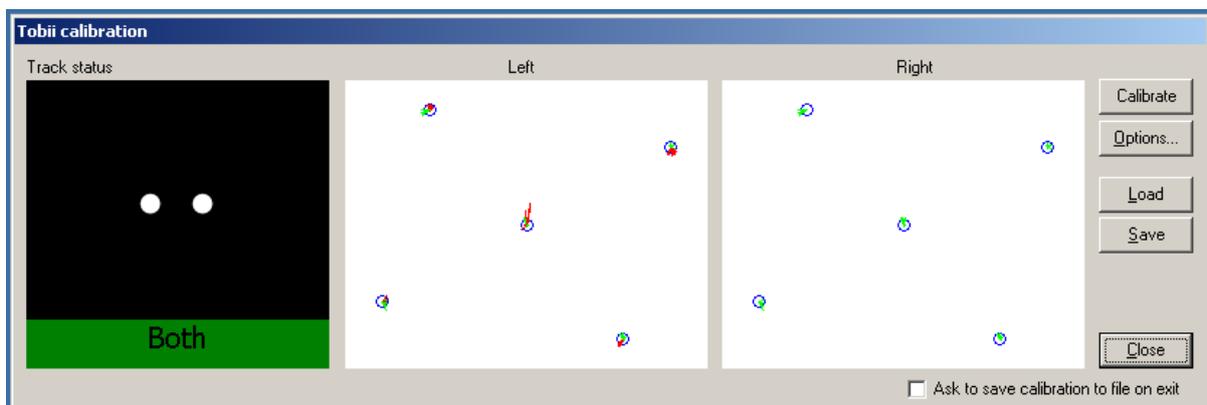


Picture 3 – Tobii 3 settings



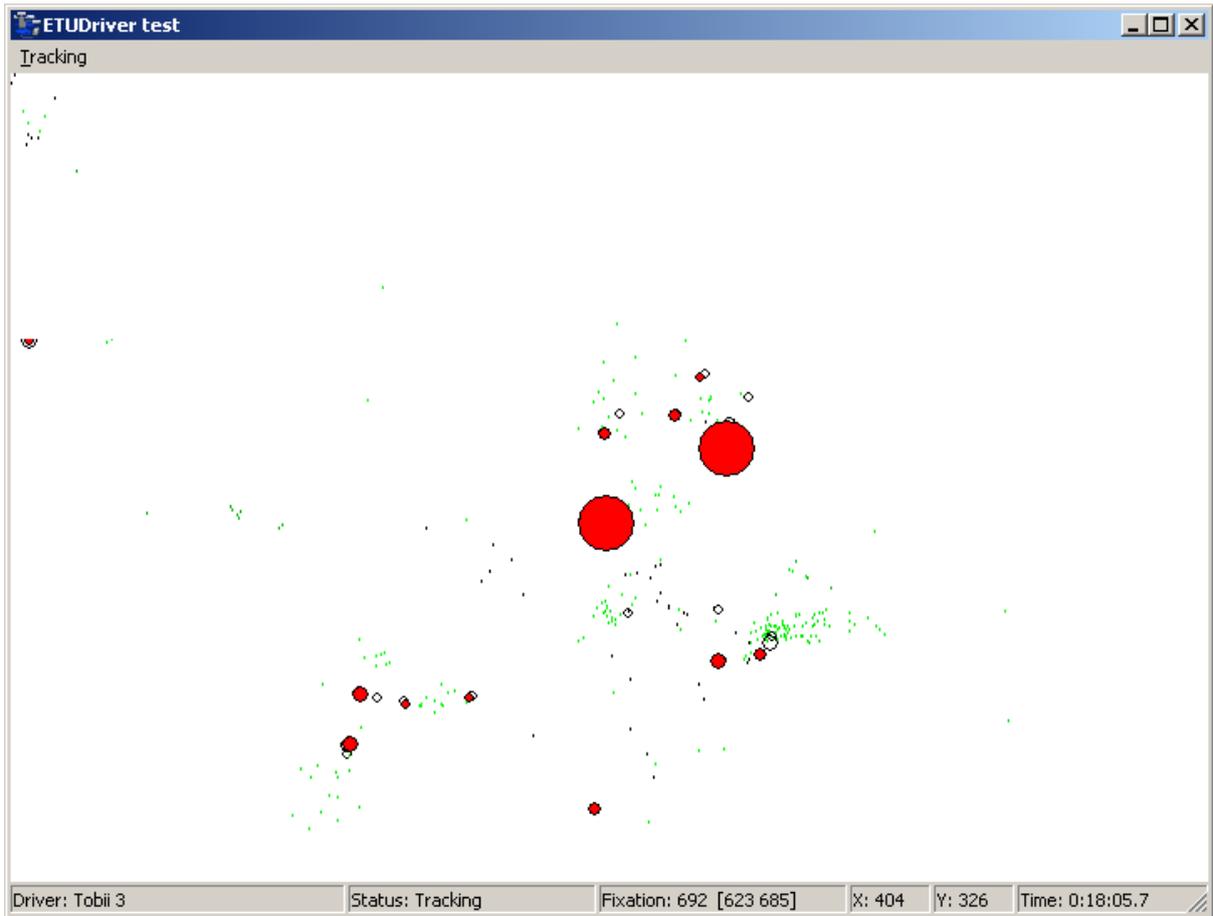
Picture 4 - Filters

When you are finished with the options you need to calibrate the eye tracker. Select “Calibrate” from the “Tracking” menu and you get the following screen:



Picture 5 – Calibration windows

Make sure the eye tracker tracks both your eyes and select Calibrate. You also have the possibility to save and load calibrations for different people. When you have finished the calibration you can close the windows and start the tracking from the “Tracking” menu.



Picture 6