Software Setup

Prerequisites

- 1. Installation CD, memory stick or latest download from website.
- 2. An IntelliGaze camera unit with appropriate license.
- 3. A PC with a preferably fresh Windows installation which meets the hardware requirements.
- Have latest Windows patches installed.

- An Internet connection is not required for most installers. - IntelliGaze provides a common installer for both 32bit and 64bit systems. - To prevent a re-boot, the camera should be disconnected during setup. - Updates can be installed over a previous version.

Software Installation

measurements.

- 1. Launch setup.exe and follow the instructions until the process finishes successfully.
- 2. On a first-time installation, please run the Monitor Calibration program:

In order to ensure the highest gaze accuracy over a large working range, the physical setup of the system needs to be calibrated once, when the system is being integrated.

Most cameras will be attached to the monitor using a 'VESA mount'. The interactive sketch will assist you in locating the requested



For later updates, the Monitor Calibration program can be found in the IntelliGaze program group.

In a dual-monitor setup, please make sure the camera is attached to the primary display!

- 3. Plug in the camera and wait until a Windows message confirms the installation of 'alea technologies drivers'. The device manager now lists the camera driver in the USB section, additionally the Internal Camera Status LED (8) turns yellow.
- 4. Start IntelliGaze, and position yourself centered about 60cm (2ft.) from the camera.

Open the Operation Center and verify the proper functioning by checking the Tracking Status Monitor: stable green 'smiley' and no error messages. The 'smiley' should follow your head movements without significant delay or stutter.

- Figure 2 Constant Con options in case of problems.
- 5. The basic IntelliGaze system has now been installed.

Setting System Preferences for Desktop Control

- Start IntelliGaze and open the preferences dialog (i.e. Ctrl-F11 or via OC).
- General Select your language and ensure that the camera license matches your requirements.
- Integrated Keyboard Select your preferred keyboard layout(s).
- Input adapt the preferred input option(s), i.e. dwell or blink click or/and switches. This will be the 'triggers' which can be used in application profiles.
- If Windows should provide gaze input directly after boot-up, you will have to add IntelliGaze to the Startup folder.

Configuring the Service Mode (optional)

Close IntelliGaze and start the IntelliGaze Service program to adjust the parameters if needed:

- Win7: Enable and set up touch screen input. (Automatic in Win8 and Win10).
- Optional: Disable automatic search for software updates.

Safety & Compliance

afety of the Infrared Illumination

agnetic Field Hazard

nce of 10cm /4 in, between the frontal part of the device and any impla

epsia / Photosensitive Seizure Warning

ergency Situations

aware that due to the possible risk of failure, the IntelliGaze system should not be rel

Do Not Open the Camera Device

Hot Key	t Key Function		
Ctrl-A	Show Application Center (Safe Mode only)		
Ctrl-F5	Start calibration		
Ctrl-F1 / û	Show Operation Center		
Ctrl-F11	Enter preferences menu - Equiv. tray icon.		
Space	Accept calibration point manually		
PAUSE	Toggle mouse cursor control on/off		
Ctrl-D	Screen video recording, with gaze on/off		
Ctrl-F12	Ctrl-F12 Toggle Demo Mode on/off		
Ctrl- ⇔/⇔	Show side menus		
Ctrl- 🖟	Show integrated keyboard		
Ctrl-O	Quit IntelliGaze		

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Quick Start Guide

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Hardware Setup_



Prerequisites

PC connection

A free USB 2 or 3 port, preferably directly on the computer.

Monitor Size

IntelliGaze can track most users accurately on monitors up to 22". The camera should be mounted as closely as possible to the screen area to achieve best results. A VESA mount is desirable.



Monitor Arm / Desktop Stand

It is highly recommended to use a monitor arm or adaptable desktop stand to provide flexibility when positioning the system.

Camera Hardware - CAM30NT



1 M	lini-USB2 connector	6	Status LED - Green: OK.
2 Ca	able lock	7	Aux. Mounting threads: M3, max. 8mm Depth.
3 81	mm pin-mount	8	Internal Camera Status LED Yellow: OK
4 Pi	in-lock screw.	9	Device label.
5 A	uxiliary power supply. Use nly certified adapters!		

Mounting the Camera

1. Please attach the included mounting adapter to the computer and possibly monitor arm. The actual combination will vary and depend on your mounting and computing hardware.





2. Push the camera module carefully onto the rods until the front is approximately aligned with the monitor plane.

3. Carefully tighten the lock screw on the bottom with a Philips screw driver. 4. Connect the USB cable to an available USB2/3 port on the computer.



USB Cable Options

The camera is available with either 0,5 or 1m USB2 cable. Above 1m cable length the system might report a 'cable too long' error due to electrical limitations. A small, external power supply to supplement the USB port is available as an option.

Maintenance

The camera contains no serviceable parts. Please clean the acrylic front plate with a soft cloth, i.e. micro-fibre and avoid harsh cleaners. The IR-glass mirror should be cleaned using isopropyl alcohol and a cotton swab.

IntelliGaze - 3 Modes of Operation

The IntelliGaze interface can be adapted to the actual user needs. Higher levels include the functionality of lower levels:

- 1. Assisted Access Only 'Starter Edition'
- A special use case, where a person guides the user through a number of applications, i.e. Look-to-Learn, and controls the gaze control features frequently through a simplified Operation Center.



- 2. Direct Software Access (API) Only - Communication Edition Only applications that have been set up to access IntelliGaze data directly, i.e. Grid2, MindExpress4 or others can be controlled by gaze.
- 3. A. Desktop / Full Control

Full gaze controlled access to all available functions, switches look&feel automatically, depending on profile settings. Most functions can be controlled via the Operation Center.

B. Safe Access

The access can be limited to pre-selected Windows applications by enabling the 'Safe Access' option.

Mode 1 and 3a/b can be selected in the preferences section of the software. Mode 2 is solely controlled by the client application. Access to mode 2 and 3 requires an appropriately licensed camera.

Auxiliary Programs

Gaze Assistant

The Gaze Assistant program provides guidance to measure and document the gaze interaction capabilities of a client. It splits the setup process into small, well defined steps that help to identify possible physiological issues.

The results can be saved into a digital document.

Reset IntelliGaze

Glossary

for later use.

device.

A small utility to reset several groups of IntelliGaze parameters to their installation values. Please use with care and consider backups!

\Program Files\alea technologies\IntelliGaze\tools\ResetIntelliGaze.exe

Basic Operation

the IntelliGaze tray icon will appear.



This section will provide a simple step-by-step guide on how to operate the system for for general computer control.

1. Start IntelliGaze

in the center.



2. Position the camera - Ctrl-F1 / Operation Center

The monitor should be aligned with the user's head in about 60cm (2ft.) distance. A straight look of the user should intersect the monitor in the upper 3rd, centrally.



The head position and automatic tracking can be validated by looking at the Tracking Status Monitor in the Operation Center. The best



If the user should be wearing glasses, a more stable tracking might be achieved by positioning the camera slightly lower than normal. Touching the Tracking Status or Ctr-F10 provides a semi-live view of the user to better locate reflections.

3. Calibration - Ctrl-F5 / or via Operation Center

The system should be calibrated individually in order to achieve the best accuracy for the user. It is recommended to calibrate both eyes while using at least 9 points. Nevertheless options to cover a wide range of requirements are provided. If the positioning above has been successful and the user's condition does not pose any other challenges, the calibration will just pace

Operation Center Overview





The results will be shown graphically, including a short qualitative feedback.

In complex cases, where a full calibration is too complex and limited accuracy is sufficient, a 1-point calibration is recommended. IntelliGaze provides many advanced options to calibrate even very complex case. (see: Preferences \rightarrow Calibration)

After a successful calibration the Operation Center can be closed and gaze control will be enabled.



4. Controlling Desktop Applications

- Mouse Control a gaze activated input, similar to a mouse, will be enabled. By default, clicks will be initiated by dwelling on a target for about 1 second,.
- Off-Screen Menus By fixating just outside the monitor area, several menus can be opened to select mouse and keyboard functions. (see image below) The Operation Center (top) is always available and can therefore be used to exit any application.

The side menus adapt to classic Desktop or Modern UI touch emulation. They can be locked open by another gaze outside, which the small pin icon will indicate.

All off-screen menus can be closed by another look in the same direction. Beside mouse click selection, special functions for scrolling (pick from a long list or continuously read text), drag&drop (direct or precise 'joystick'), two finger touch (zoom and rotate) and Win8 system gestures are provided.

A caretaker can help the user to open the side menus and OSK with the keyboard shortcut Ctrl+Left/Right and Ctrl+Down

- The keyboard can switch between the pre-configured layouts.
- IntelliGaze will context sensitively try and automatically open the keyboard or magnifier. This function depends on the underlying program.

Tracking Status Monitor - A little 'smiley' display that allows to judge tracking position and stability. Ideally it should be green, centered and both eyes shown (tracked). At times error messages can appear inside that dis-

system preferences can be accessed via

a link in the OC, the trav icon or Ctrl-

F11. The Service Mode can be accessed

via a program link in the IntelliGaze

installation folder.

Trigger - IG generates mouse click events based on pre-configured 'triggers'. Typically that would be a dwell, blink or switch. IG allows the definition of two parallel triggers (1, 2) in the preferences section. The definition should reflect the capabilities of the user and the connected hardware. The OC status bar shows the trigger assignment, because their actual function can be assigned at run-time as part of the Application Profile. Default configuration: 1: Dwell / 2: none - Examples: IntelliGaze Application Profiles.PDF

Operation Center [OC] - The gaze and touch accessible entry point Application Profile - An application to adjust and control IntelliGaze. Preferences and Service Mode - The

profile controls a large number of gaze interaction parameters and is automatically activated with the start of that application.

A DEFAULT profile, which can also be configured individually, is used whenever no dedicated profile has been defined

Calibration Profile - The parameters

and results of an individual calibration

can be saved into a calibration profile

Direct Control - When a switch is

configured as 1st trigger input, clicks

will be directly translated into left

mouse button presses, i.e. enabling

License - a numeric key to access cer-

tain IG functions, stored in the camera

easier drag&drop operations.

Status: [Preferences] > General

Gaze Calibration - Calibrates the properties of the users' eyes to the camera and screen by looking at a sequence of automatically presented targets. A higher number of cal. points typically provides higher accuracy.

Customizing Gaze Control - Application Profiles

IntelliGaze v.4 introduces a completely new scheme to provide custom gaze control behavior on a per-application basis. The former static configuration has been replaced with dynamically loaded sets of optimized parameters - Application Profiles.

Whenever a program is launched, IG tries to load a matching Application Profile.

A small square in the upper right hand corner shows the current profile name and key functions. IntelliGaze comes

with a constantly growing number of predefined profiles. The included 'IntelliGaze Application Profiles.PDF' document provides a current list, download links and more detailed information.



'Default' Profile

A Default Profile serves as a basis for all custom configurations and is used as a fall-back for applications without special settings.

Whenever there is no desire for custom configurations, please consider the Default Profile as a static, system wide setup. The Default Profile can be easily customized:

OC > Options > Current Appl. > 'Open Profile Manager' > Select: Default > Edit For a truly static behavior, all custom Application Profiles can be disabled or removed in the Profile Manager.

Editing Profiles

All existing profiles can be edited like the 'default' profile above and new profiles can be defined with a button press. All operations work with the most recently active program, which is particularly helpful when working with Windows 8 Modern UI applications.

Profile Parameters

The most significant settings of a profile can be seen in the Profile Overview.

The Profile Editor provides a structured access to cursor settings (color, size, behavior), menu and tool behavior and also allows the definition of most sophisticated interactions using the two trigger channels, i.e. dwell , switch and many system commands. All non-defined parameters will be used, as defined in the Default Profile.

Application Center - Safe Access

The Safe Access mode allows to limit the number of programs and Operation Center functions that the user can access. It introduces a full screen Application Center which serves as a home page.

By using application profiles the gaze control will be identical to full access mode.

To en-/disable Safe Access, please refer to:

Preferences > Operation Center > Safe Access

Entries can be defined under:

Preferences > Operation Center > Application Center

Alternatively the current application can be added directly:

Operation Center > Options > Current Application > 'Add to Application Center'

Grid2 Integration

Grid2 by Sensory Software has been modified to directly integrate with IntelliGaze eye gaze control, providing a more seamless user experience. While IG comes with a pre-defined application profile, Grid2 needs to be configured manually:

User Settings > Input > Eye gaze > alea IntelliGaze

Calibration and click parameters can be set up in Grid2 and special buttons for tracking status display, calibration control, etc. can be included in grid sets.

Successively there are two methods to use Grid2:

1. Grid2 starts and ends IntelliGaze.

2. While IntelliGaze is running, the user launches Grid2 from the Windows desktop or the IG Application Center.

The later option allows the user to switch between Grid2, Windows and other applications autonomously while staying under gaze control.

