

VideoKifu v0.9.9demo

for Windows[®] operating systems

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1. Introduction

VideoKifu reconstructs the whole move sequence of a Go game from a possibly unattended video feed, either live or deferred. It produces an SGF file and a game record (the so called kifu).

This is a demo version with restrictions both in maximum analysis time and in maximum number of moves, as shown in the following table:

goban size	max time	max moves
9×9	∞	999
13×13	0:05:38	56
19×19	0:12:02	120

2. Licence

VideoKifu is licenced under the Creative Commons Attribution - NonCommercial - NoDerivatives 4.0 International Licence (CC BY-NC-ND 4.0). To view a copy of the licence, visit:

<http://creativecommons.org/licenses/by-nc-nd/4.0/>

VideoKifu is [donationware](#).

That means if you like it, or if you want to contribute to its development, you may send a [donation](#) to the authors using the [PayPal](#) account PhotoKifu@gmail.com (click on the “Donate” link included in the distribution of VideoKifu or in the “About VideoKifu” window).

3. System requirements

VideoKifu works under 32 or 64 bit Windows operating systems (Vista SP2 or later) and does not need any particular resource apart from the [Microsoft® .NET Framework 4](#), an integral component of the Windows operating system.

The required minimum screen resolution is 1024×768 pixels.

If VideoKifu is used under Windows 8.1 (or previous), with a high-definition display and custom DPI setting higher than 100%, the “XP style DPI scaling” tick box must be left in the default unchecked state.

4. How to install

VideoKifu does not need any installation: just unzip and run it!

On old Windows versions you may need to retrieve and install the [.NET Framework 4](#) from the Microsoft official website:

<https://www.microsoft.com/en-US/download/details.aspx?id=24872>

5. How to use

5.1 Video camera setup

The video camera must be placed on the side of the goban (whose sides will be almost parallel to the frame's), as high as possible. The grid of the goban must be thoroughly in focus, entirely visible (including the edges) and it must take up most of the frame, otherwise the program could fail to locate it.


It's important for the focus not to change during the game; before the video starts don't forget to check, by means of the video camera's software, the autofocus to be inactive.



Video camera's resolution should be high, possibly 720p or 1080p, and never less than 480p. Bear in mind that with higher resolutions too much time could be spent on the analysis, whereas lower resolutions could prevent the stones to be detected.

Try not to move the goban nor the camera during the game: should that happen the program is able to correct the shifts, but only if they are small (approximately the radius of a stone, at most) between two consecutive frames. If the automatic correction does not work it will be necessary to manually correct the location of the grid, as explained later.

The goban must be evenly illuminated; take care not to change too much the lighting during the game, especially trying not to have areas of the goban in the shade or, vice versa, areas of light so intense to appear almost white because of the reflections of light sources. If possible, check white balance of your video camera and colour accuracy before shooting the video.


5.2 Use of VideoKifu

When VideoKifu analyses a game — either live or deferred (if such were the case a video file should be chosen by means of the specific button on the main window) — at first it tries to locate the goban's grid; when found, the grid will be plotted on the screen, above the real one, in red; then, should not change its position, its colour will vary from red to green. Should the position not change for long enough the grid's colour will remain light green, and the button  will be enabled: pushing it will let the analysis start. VideoKifu will wait for the first stone to be played, and every time one will be put on the goban the move will be detected and the list on the right will be updated, as well as the position on the centre.


Should not occur any problem, all the stones will be detected and, once the video ended (with the button  if live, otherwise at the end of the file), the user, after having possibly amended the moves' list, will be able to create the SGF file and the kifu (if the specific options, also available during the game, has been selected) by means of the button . The program will also try to compute the score, given the game has not been resigned (likely the program will acknowledge the resignation, too).

Other options and information about the game (such as players' names, komi and so on) are not mandatory and may be input, as every other, even after the start of the game. Only the rules of the game are mandatory (by default Japanese rules are suggested).





5.3 Errors during the analysis

During the analysis errors should not occur. Yet the goban could be moved, intentionally or not, completely shifting the grid position; stones could also be erroneously detected, although such an event should be extremely uncommon. The user may correct these errors during the analysis, and it's advisable to do so as quickly as possible in order to avoid more errors further on. After pushing the button  the errors can be corrected these ways:

5.3.1 Errors in the grid position

In order to correct the grid position the user will push the button : this way the program will again compute its position, and the grid will be plotted over the goban, unless too many stones (approximately more than half all the intersections) are present; by the way if the grid would not look correct it will be possible to straighten it either clicking on the goban's corners (just moving the mouse on the corners will zoom them) or by means of the keyboard's arrow keys that will shift it accordingly. Once straightened, the grid should be validated by pushing the big button on the centre of the frame.


5.3.2 Wrong moves

In order to correct any error in the moves the user will find the most suitable position on the moves' list on the right and will do the necessary adjustments by looking at the frame on the left and its graphical depiction on the centre (synchronized between them and with the moves' list). It's possible to delete a move by means of the button  (the move to be deleted will be the selected one), add another one by means of the button  (the new move will be added after the selected one), and also invert the moves following the selected one by means of the button  (because if a move is not detected the following ones will be detected as couples, in wrong order). Once the corrections ended the analysis will resume by means of the button .

Let's keep in mind that, if the analysis is live, moves played during a pause might not be detected afterwards (or could be, but in wrong order): that's likely if such moves are more than two, and almost sure if they are more than four. That's why it's strongly advisable to make any correction as quickly as possible. Of course if the analysis is deferred instead, it will resume from the same point in the video where it had been stopped.

5.4 Resuming of a previous analysis

It is possible to resume a previous analysis, already come to an end, if the user wishes to verify and correct any possible errors. For this purpose a

file, with extension VK, is saved at end of each analysis: the program can later open this file (using the filter “VideoKifu analyses” in the file browser window), which contains all the information needed to resume the analysis starting from any move, that the user should click on the list on the right. The frame shown on the left, as well as the position on the centre will be synchronized accordingly. The analysis will resume from the selected move, after pushing the button .

During the analysis it is possible, by means of the <PrtSc> key (print screen), to save the current frame in PNG format, as shown on the left. The VK file, as well as the PNG files, is saved in the “Destination directory”, as chosen by the user.

In the case the user wishes to resume a live analysis, a video file, in MP4 format, will also be available in the “Destination directory”: this file is automatically saved by the program, and contains all the frames VideoKifu analysed during the game. The most powerful the PC used for the analysis, the most frames will be saved in the video (that should be played at 6 FPS, according to the program’s parameters, although the actual speed could be different).

6. How to uninstall

If, for some reason, you do not like VideoKifu: close it (if needed) and delete its folder.

That will completely uninstall VideoKifu. :-(

If you had to install [.NET Framework 4](#), you may remove it through the usual “Add/Remove” applet of the Control Panel (be careful: it may be shared with other applications).

7. Feedback, suggestions, bug-reports

Any comments, suggestions and (most of all) bug-reports are welcome. Please use the eMail address andrea.carta@mclink.it or Mario@corsolini.net

It is advisable to specify "VideoKifu" in the subject field and to report the version of both the program and the operating system. While submitting an error it is also advisable to attach the last VK file (if available) saved by VideoKifu in the chosen "destination directory".

VideoKifu is a multilingual application: contact us if you are willing to translate it into another language!

8. Release history

- Version **0.9.9demo** — July 14th, 2017
 - First public release (demo version).

9. Acknowledgements

Thanks to the authors of OpenCV¹ and Emgu CV² for providing their useful software.

Most of the icons used in VideoKifu belong to the collections: Must Have by VisualPharm³, Oxygen by Oxygen Team⁴ and Sleek XP Basic by Hopstarter (Jojo Mendoza)⁵.

The authors want to thank all the people who helped them with ideas and valuable suggestions, particularly: Dani Ferrari for his advice on the stone recognition algorithm, Hyun-Soo Park⁶ (and coworkers) for his works on a static score-counting algorithm, as well as the beta testers!

And, obviously, thanks to Laura and EmmeTi!!

Well, that's all about it, happy playing!!!

¹ opencv.org

² www.emgu.com

³ www.visualpharm.com

⁴ www.oxygen-icons.org

⁵ hopstarter.deviantart.com

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