

Getting Started

Version 17 August 2026. Support: daniel@attinger-consulting.com

Read this first: what changed since the June workshop

The app has moved a long way since the June sessions. If you kept the old handout, these are the points where it is now wrong.

- **You now tell the app where the stain is, before it classifies.** After you choose a photograph it comes back on screen and you draw a loop, a box or a stroke on the stain. This is the single biggest improvement available to you and it costs nothing. The old handout does not mention it at all.
- **Threshold (preview) is free.** It shows exactly what would be segmented before you spend a credit. Look at it before you read any answer: most surprising results are explained by what was segmented, not by the model.
- **Ignore the old advice to "treat anything below 98% with caution".** A high direction percentage is not a safety signal. The number saturates: most photographs score above 90%, and a reversed arrow can carry a high percentage. Read the warnings described below instead, and treat them as the app telling you it does not have enough to go on.
- **The direction can now decline to answer, in two different ways.** "No direction indicated" means the mark does not show a direction of travel at all. "This direction is not repeatable" means the answer reversed under a change to the outline smaller than your own hand makes. Both mean: take the direction as undetermined.
- **Every run is screened for whether the region really looks like blood,** and the credit is refunded when a run you did not aim is flagged.
- **Research submission mode was withdrawn on 12 August 2026.** It is no longer offered. Standard and Private remain. Submissions made under it before that date are still kept on the terms that applied when they were collected.
- **The pattern type now includes transfer and spatter,** both labelled experimental on the card, and a spatter call deliberately hides the object and direction answers.

Everything after this page is the current user guide.

Reconstruction of Blood Transfer Stains - User Guide

Version: 2026/08/15 **Application:** Reconstruction of Blood Transfer Stains (web app; earlier titled "Blood Stain Classifier") **Interface:** Web-based, works on desktop and phones. Nothing to install.

What the app reports

You give it a photograph of a bloodstain. It reports:

- **Pattern type** - swipe / wipe / transfer / spatter.

- **Bloody object** - what likely made the stain, as a ranked short list with reference photographs.
- **Swipe direction** - which way the stain was made, drawn as an arrow on your photograph.

Two checks run alongside those answers and are explained below: a **bloodstain check**, which can tell you that what was segmented does not look like blood, and a **framing guard**, which warns before you spend a credit if the pattern is too small in the frame for the answer to be worth much.

The app is a decision aid. It has only been tested on stains photographed against uniform, light backgrounds; treat everything it says as evidence to weigh, not as a finding.

Accessing the app

- **Hosted app**: open the app's URL in a browser, on a laptop or a phone. All the computation happens on the server, so no GPU and no install are needed.
 - Supported browsers: Chrome, Firefox, Edge, Safari, desktop and mobile.
 - The hosted copy can sit behind the newest internal build by design, so if a feature described here is missing you are probably on an older deployed version.
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Accounts, credits and email updates

Register / Log in with the buttons top-left. Registration asks for email, full name, organization and a password (8 or more characters, upper and lower case plus numbers).

- **New accounts start PENDING.** An administrator must approve the account before it can log in and spend credits. Until then you see an "Awaiting approval" badge.
- Once approved the top bar shows your **email**, your **credit balance**, and buttons for **Redeem Code**, **History**, and - for administrators only - **Admin**.
- **Credits** are spent per classification (see the cost table below). Administrator accounts are never charged.
- **Buying credits online is not live yet.** Clicking the credits badge opens a "Coming Soon" panel with an email link for requesting a voucher.
- **Redeem Code** takes a voucher code (for example `CRED-XXXXXXXX`, case insensitive, single use) and adds the credits immediately.
- **Forgot your password?** on the login form emails a reset link.

Email updates

The registration form carries an optional tick box: *"Email me occasional updates about this tool"*. It is genuinely optional and off unless you tick it.

- The list is held inside the app. It is not passed to any third-party mailing service.
 - Your address is used for updates **only** if you ticked the box. An account that was never asked - which is every account created before this option existed - counts as "not asked", never as consent.
 - Every email carries an unsubscribe link that works without logging in and does not touch your account, your credits or your history.
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Analysis level and submission mode

Two independent choices set the credit cost, shown live under the upload box.

Analysis level

Level	Credits	What you get
Quick	1	Pattern type, object and direction predictions only.
Standard	2	Everything in Quick, plus the thresholded stain image - what the app actually segmented and scored - and the direction reliability flags.
Detailed	3	Everything in Standard, plus Grad-CAM heatmaps for each answer, showing which part of the image drove it.

Detailed is selected by default.

Submission mode

Mode	Cost	Effect
Standard	x1	Default. Your image is stored for 30 days and the result is visible to the administrator.
Private	x2	Your image is never stored . The administrator cannot see your image or your result.

Research mode has been withdrawn (12 August 2026). It offered half-price classification in exchange for ground-truth details about the stain. The button is gone and the option is refused if an old browser tab still tries to send it. Submissions made under research mode before that date are still held on the terms that applied when they were collected, and still appear in your history - see the Data Retention Policy, linked from the Help panel.

Uploading a photo

Drag a photograph onto the upload box, or tap **Browse/Take Photo**. PNG and JPG are accepted, and the image is resized in your browser before upload.

One photograph at a time. This is deliberate. A multi-image upload skips the marking step below, and the fully automatic path is measurably less reliable about direction than one where you have shown the app where the stain is.

No photographs of your own? A Practice photos strip sits just under the upload box once you are signed in. It holds the eleven workshop teaching images, ordered easiest first - work left to right; each one is chosen to show you something the one before it could not. Tap a thumbnail and the photo is loaded exactly as if you had uploaded it, including the marking step below. There is nothing to download and no third-party account.

Before you upload:

- Crop so the stain fills roughly **50-70%** of the frame.
- Keep the whole stain inside the frame - do not cut off an edge.
- Photograph against a clean, uniform, well-lit background, ideally white, at **500x200 pixels or better**.
- Orientation does not matter. A portrait photograph is turned to be analysed and turned back to be

shown to you; the result card says when that happened.

The ? button, bottom right, opens Help and FAQ, which links a *Getting Started* PDF and the *Data Retention Policy*.

The seed stage: telling the app where the stain is

After you choose a file the photograph is shown again in a **seed stage**, where you can mark the stain before spending a credit. If you skip this and press **Classify**, the app segments the stain on its own (auto mode).

Marking the stain is worth the twenty seconds. It is the single biggest thing you control.

Drawing modes

Press **Mode: SURROUND loop** to cycle through four gestures:

1. **SURROUND loop** (default) - drag one loop around the stain. The app keeps what looks like stain inside the loop, judged against the surface just outside it.
2. **STAIN stroke** - tap or drag directly on the stain to mark it positively. A drag says "this is one continuous stain"; separate taps say "these are separate sub-stains". Use it to recover faint parts the app missed. It cannot flood into the background.
3. **BOX** - tap for a suggested box, or drag your own. Drag a corner or edge to resize, drag inside to move.
4. **BACKGROUND** - tap or drag on anything wrongly kept, to push it back out. A mark over a part you marked as stain only erases locally, so you cannot wipe out the stain by accident.

Zooming: hold Ctrl and use the mouse wheel to zoom the photograph, Ctrl-drag to pan. A **Reset zoom** button appears once you have zoomed, and shows the current factor. On a touchscreen, one finger draws and two fingers pinch-zoom - any two-finger touch is treated as zoom, never as drawing.

Clearing: buttons below the image clear the loop, the box, the stain marks, the background marks, or everything, individually.

Checking your marks

- **Threshold (preview)** shows what would be segmented, **free of charge**. Use it before you commit.
- Three view toggles appear once anything is drawn, and each names what it takes away:
 - ☐ **Bare photo** - hides both the green segmentation and your own marks.
 - ☐ **Hide green** - hides the segmentation, keeps your marks, so you can place points on the unsegmented stain.
 - ☐ **Hide my marks** - keeps the green, hides your marks, so you can see what was actually segmented underneath them.
- If the preview looks unusual - several disconnected pieces, one tiny fragment, a very elongated stain - a note appears under it naming the Advanced option that addresses it, and opens the Advanced panel for you. Nothing is ticked on your behalf there; it suggests, you decide.

Then:

- **Classify** runs the real classification and spends the credit for your chosen level and mode.
- **Cancel** abandons the seed stage for this file.

The framing guard

If the app measures that the pattern is too small in the frame - many small marks covering only a few percent of the photograph, or an image that had to be reduced a long way - a banner appears **before** you classify:

- **Show the suggested crop** draws a proposed tighter box on the photograph.
- **Crop to box** actually cuts the photograph down to that box, or to any box you have drawn yourself, re-reading it from your original file at full resolution, and restarts the seed stage on the crop.
- **Use the whole photo** dismisses the banner and classifies the original framing.

This is advisory and never blocks you. Two consequences if you go ahead anyway: the result carries a framing note (see below), and the guard ticks the "Threshold every stain inside my loop" option for you, because many separate small stains is what it has just detected.

Advanced options

A collapsed **Advanced options** panel sits under the drawing buttons. It is closed by default - an ordinary swipe photograph needs none of it - and opens itself when the framing guard fires, when the threshold preview suggests one of these, or if you had one ticked on an earlier photograph in the same session.

- **Threshold every stain inside my loop** (useful for spatter, cast-off, or transfers that leave several separate stains). Changes what a loop or box *means*: instead of "the one stain nearest my marks" it becomes "keep every stain inside this fence", and the fenced region is re-read from your original photograph at full resolution. **Your marks correct it in both directions** - dot a stain it missed and that stain is put back, tap the background to rub out something it should not have kept, such as a ruler or a shadow. Leave it off when what you looped is one continuous blob of blood.
 - A **Keep less / more** slider sits under it. Move it right if pale parts of the stains are being missed, left if the surface is being picked up. The middle position is the normal behaviour, so a slider you never touch changes nothing. It resets for each new photograph, and it is meant to be turned while looking at the threshold preview.
- **Non-uniform background** (printed, patterned or textured surface). For stains on a substrate that is not plain. Tap the stain, loop around it for the background, then Threshold or Classify. Background dots are optional extras. A **Sensitivity** slider tunes how hard it works to separate stain from a busy surface.
- **Force end-tiling** (very elongated stains). Makes the app read the two ends of the stain rather than fit the whole thing into one frame, for stains long enough that it would not do so on its own.

The first two exclude each other. Ticking one unticks the other. They ask for different things - one is about the stains, the other about the surface - and only one can be applied, so the app makes the choice visible instead of silently discarding one.

Understanding results

Each photograph produces one result card. The card carries a small run number, for example #1234, which identifies that analysis in your history and in the exports.

Pattern type

The overall pattern as **swipe** / **wipe** / **transfer** / **spatter**, with a confidence bar. It does not depend on orientation, so it has no arrow.

A spatter call suppresses the object and direction sections entirely, along with their heatmaps. Impact spatter has no single causative object and no left/right sense, so a confident-looking answer for either would be worse than no answer. The note under a spatter result also warns that this answer was learned from patterns filling roughly 7-15 cm of frame - a whole pattern photographed from further back will not be recognised.

transfer and spatter are labelled experimental on the card. Each currently rests on a single photographic session, which is not enough to support a claim about casework.

Bloody object

A pie chart plus up to three candidates, each with a reference photograph and a name. The winner is bolded with a thicker, colour-matched border. Slice size, rather than a printed percentage, shows the margin between candidates: one large slice is a confident call, a pie split three ways is not.

Treat this as an analogy - "the mark is consistent with something like this" - not as an identification.

Swipe direction

An **orange arrow** is drawn on the photograph, anchored on the detected stain and laid along the stain's own long axis, with a translucent blue wedge for uncertainty (currently plus or minus 45 degrees). What you see depends on the direction confidence:

Confidence	What you see
65% or more	Full-length arrow with the uncertainty wedge.
55-65%	A shorter arrow, labelled "(low confidence)" in the card text.
Below 55%	No arrow. A translucent disk marks "direction undetermined"; the best-guess angle is mentioned only in a warning box.

The angle convention is printed on every card: **0 degrees = to the right, increasing counter-clockwise** (90 up, 180 left, 270 down).

Two further states, both newer than the previous edition of this guide:

- **"No direction indicated."** The app can now say that a mark does not show it a direction of travel at all, and it draws no arrow when it does. This is not the same as low confidence: low confidence means it has a direction and distrusts it, this means it has none to offer.
- **"This direction is not repeatable."** After answering, the app re-reads the direction on a very slightly larger and a very slightly smaller outline of the same stain - a difference no examiner would call meaningful. If the answer reverses, the card says so in red. Take the direction as undetermined when you see this, whatever the arrow shows and whatever percentage sits beside it. It appears on roughly one photograph in ten. Note the reverse does not hold: no warning is not a guarantee. A repeatable answer can still be wrong.
- **Turned photographs.** A photograph taller than it is wide is turned 90 degrees to be analysed and

turned back to be shown. The card says so, with a badge. Nothing is mirrored, and the direction angle has been turned back with the picture. The one thing to be aware of is that the frame you drew your loop on was the turned one, so a diagonal stain will appear to lean the other way between the two views.

Framing note

If the framing guard fired on this image, a **Framing** block explains how much of the frame the marks filled against what the app needs, and whether you classified at that framing anyway or accepted a tighter crop. Treat a "below recommended framing" result as weaker evidence than an ordinary one.

Thresholded stain and Grad-CAM

- **Standard level and above:** a **Thresholded Stain** image showing exactly what was segmented and scored. This is the first thing to look at when an answer surprises you - most surprising answers are a segmentation problem, not a model problem.
- **Detailed level: Grad-CAM heatmaps** for the object, direction and pattern-type answers, showing which region drove each. Bright means more influential. Useful for checking the app looked at the stain rather than at the background.

Under a single-image result, **Not happy? Refine with loop / stroke** takes you back to the seed stage on the same photograph.

The bloodstain check

Every classification is screened for whether the segmented region looks like blood at all. The result appears on the card in one of three ways.

1. Flagged: "This may not be a bloodstain." An orange block at the top of the card.

- It states the strength of the caution as a likelihood ratio from held-out testing ("about Nx more common among non-blood than among genuine stains"), says what that ratio is measured against, and gives one worked example of what it means for a stated expectation. It deliberately does **not** print a bare "% not blood": that number depends on how often you expect to submit non-blood in the first place, which the app cannot know.
- **The object, direction and pattern-type answers are hidden.** They were computed and they are on your record; they are not shown as findings because a confident readout under a warning that it may be meaningless would undercut the warning. **Show the answers anyway** reveals them, and cannot be undone for that card.
 - The thresholded stain image **stays visible**. That is the evidence the caution is asking you to check, not an answer.
- **Your credit is refunded if you did not mark the stain.** Nobody told that run where to look, so a miss is ours. A run where you drew a loop or a box is charged, caution or not, because you aimed it.
- **"There IS a stain - let me draw round it"** returns you to the seed stage. That re-run costs a credit, because once you have said where the stain is the answer is about the region you chose.

2. "Passed, but close to the line." A quieter amber note. Nothing is withheld and nothing is refunded. It means the image scored near the point where it would have been flagged; take the answers as weaker

evidence and check the segmented region is really the stain you meant.

3. A muted one-line reading on every other screened result. Most genuine stains carry a ratio pointing firmly towards blood, and the card now says so rather than staying silent. Where the evidence is weak either way, the line says that instead of picking a side.

The check flags roughly 3 in 100 genuine stains. A caution is therefore a prompt to look at the thresholded image, not a verdict - and a pass is not a guarantee that what you photographed is blood.

History, export and download

- **History** in the top bar shows a paginated table of your past classifications: file, date, mode, level, predicted type and direction. Click a row for the full detail view with images. Administrators additionally get a filter to view any user's history.
 - Under the results section, **Download JSON** and **Download CSV** export everything processed in the current browser session - not your whole history. Each row carries the filename, the run number, the analysis level, the predictions and their confidences, the direction angle, the framing-guard flag and framing measurement, and the bloodstain check's band, score, likelihood ratio and refund flag.
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The case likelihood-ratio tool

A **separate application**, with its own address and its own front page, sharing your account and sign-in with the classifier. It answers a different question from the classifier: instead of "what made this stain", it asks **how much more this questioned stain supports one proposition than another**, calibrated on control stains from your own case.

It is a laptop tool - the builder has no phone layout, though the report and gallery it produces read fine on one.

The shape of a case:

1. Create a case and upload the photographs you are working from.
2. Crop stains into three groups: **A** and **B**, the controls for the two competing propositions, and **Q**, the questioned stain or stains. You can also crop a reference photograph of each proposed object.
3. Optionally **check thresholds** and hand-correct any segmentation, with a brush to add and erase.
4. **Run comparison.** The result is a report with a likelihood ratio, the fitted model behind it, a verbal scale, and clickable plots that link the individual stain photographs. A gallery page shows every stain with a zoom viewer.

Three things to know before you use it:

- **Consent is required to run**, in one tick box above the button. It covers two statements at once: that the tool is ****experimental and not validated for casework****, and that you allow anonymised reuse of the case - crops and the surface/object labels only, never your source photograph - to extend coverage to new surfaces and objects. Cases created before 12 August 2026 will ask for it before they will run again.
- **Those crops and labels are kept indefinitely**, because their value is as a long-lived reference set. Your source photographs are never stored at all.

- **You can take a case back out at any time**, with the "download this case" link: a ZIP holding every crop, its A/B/questioned label, the propositions, your hand-edited masks, the object photographs and the report. You can also ask us to delete a case.

The tool also carries two warnings worth reading when they appear. It warns in the report when the lighting separates your two control groups, because lighting that differs between A and B will look like a genuine difference between them and will make the result appear *better* than it is; photograph all your controls in one session under one light. And it warns when the likelihood-ratio scale along the top of the plot cannot be drawn honestly, in which case it is dropped rather than shown misleadingly.

This part of the service does not charge credits.

Workshop mode and the workshop lock

Workshop mode is an opt-in feature for live training sessions: an anonymous, nickname-based quiz that shows participants a photograph, asks them to guess the pattern, the direction and the object, then reveals the app's own answer for comparison. It is off unless an organizer has turned it on for an event, so most users will never see it. The answers it quotes are kept in step with the model automatically, so a quiz never shows a room the answers of a version nobody is running.

The workshop lock reserves the service for the people in the room. When it is on:

- A banner appears at the top of the page before you choose a photograph, so you find out before doing any work.
- Classifying, thresholding and the whole case likelihood-ratio builder are refused for anyone without a pass, with a message saying so and, usually, when the lock ends.
- Attendees get a pass. If you register on the day, approval grants you one automatically; otherwise an administrator can grant one per person.
- Signing in, your credits, your history, and reading a report you have already produced are **never** locked. Work already queued still runs.

If you meet the lock and you are not at the workshop, wait for the stated end time and try again - your account is fine.

Admin panel

Visible only to administrator accounts, via the **Admin** button. It provides:

- The user list with role, credit balance, email-updates preference, and registration and last-login dates.
- **Grant credits** to a user, inline per row.
- **Approve** pending registrations.
- **Mailing list** - build a BCC line to paste into an email client, or download a CSV with a per-person unsubscribe link. It separates people who said yes, people who were never asked, and people who opted out.
- **Workshop lock** - start it with a duration and an optional message, end it early, extend it (which extends everyone's live pass), and grant a pass per person.
- **Workshop** - the quiz corpus: add new images, retire an image, refresh the stored model answers

on demand, and read the log of which answers changed, when, and whether it was the automatic refresh or someone pressing the button.

- Case likelihood-ratio curation and export, for cases whose owners consented to reuse.

Administrators are never charged credits, and may upload several photographs at once.

Mobile use

Phones are a supported target - participants at in-person sessions use their own devices. The seed-drawing canvas is touch-first: one finger draws, two fingers pinch-zoom. Controls keep a minimum 44-pixel tap target and a 16-pixel font, the latter because smaller controls make iOS zoom the page, which throws off the drawing coordinates.

The case likelihood-ratio builder is the exception: it is a laptop tool. The reports and galleries it produces are fine on a phone.

Troubleshooting

"Cannot connect to classifier backend", or the drop zone shows an error The server is not reachable. On the hosted app this usually means the service is restarting - wait a minute and reload.

"The analysis server is reserved for a workshop right now" The workshop lock is on. See above. Your account is unaffected; sign-in, credits and history all still work.

Account stuck on "Awaiting approval" New accounts need an administrator to approve them before login and credits work. Contact your administrator.

Out of credits, or "Coming Soon" when I try to buy more Online purchase is not live. Use **Redeem Code** if you have a voucher, or email daniel@attinger-consulting.com to request one - the link is in the credits panel.

Images will not upload, or drag-and-drop does nothing Check the file is PNG or JPG and under about 50 MB. Try Chrome if another browser misbehaves, and hard-refresh the page. Note that you can only select one photograph at a time.

Only part of each stain is being thresholded Preview with **Threshold**, then: if you looped several separate marks, tick **Threshold every stain inside my loop** and use the **Keep less / more** slider to the right; if it is one stain, use **STAIN stroke** to tap the parts that were missed. On a printed or textured surface, use **Non-uniform background** instead.

Something that is not blood was kept - a ruler, a shadow Switch to **BACKGROUND** mode and scrub over it. In "Threshold every stain inside my loop" the exclusion covers an area around your mark, so a single scrub across a ruler clears it.

Flagged "This may not be a bloodstain" but I know it is Click **There IS a stain - let me draw round it** and mark the stain yourself. The check screens every run, but the answers are only withheld when it flags, and drawing round the stain gives it a much better region to judge.

Direction shows "uncertain", or no arrow The left/right signal was too weak to trust. This is an honest "do not know", not a fault. Re-photographing with the stain filling more of the frame, against a plainer background, often helps.

"This direction is not repeatable" Read the direction as undetermined for this photograph, regardless

of the percentage. Re-drawing your loop will not fix it - the app has already established that the answer moves under a change smaller than the one your hand makes.

The photograph on the result card looks flipped compared with the one I drew on It was rotated, not mirrored. A portrait photograph is turned to be analysed and turned back to be presented, so a diagonal stain appears to lean the other way between the marking view and the result. The badge on the card says when this happened, and the direction angle has been turned back with the picture.

Tips for best results

1. Crop tightly but keep the **whole** stain in frame.
 2. Use a clean, uniform, well-lit background.
 3. **Mark the stain** rather than relying on auto mode. It is the biggest single improvement available to you, and it is free.
 4. Use **Threshold (preview)** before Classify to check your marks - it costs nothing.
 5. Where the photograph holds many separate small stains, tick ****Threshold every stain inside my loop**** and fence the area with a loop or box.
 6. Read the thresholded stain image before you read the answers. Most surprising results are explained by what was segmented.
 7. Treat a framing note, a low-confidence direction disk, a "not repeatable" warning or a bloodstain caution as the app telling you it does not have enough to go on - not as a wrong answer to argue with.
 8. For the case likelihood-ratio tool, photograph all your control stains in one session under one light.
 9. Apply your own domain expertise on top of every result. The app is a decision aid, not a verdict.
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Last updated: 15 August 2026 **Status:** Active development. The hosted build may lag the newest internal one.