

Tips & Tools to Aid Birdwatching & Bird Photography Series: Artificial Intelligence Tools to Aid Birdwatching

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Artificial Intelligence (AI) tools are very helpful for birders, especially beginners, to obtain an automated species identification (ID) suggestion based on a photo. Four major tools are available.

Merlin <https://merlin.allaboutbirds.org/download/>

Merlin is powered by Cornell Lab, which is also linked to eBird. The app includes a new feature to identify birds by sounds, but it is not trained to cover Asian species as yet.

iNaturalist <https://www.inaturalist.org/>

Records sightings of all types of living creatures, including birds.

Google Lens <https://lens.google/>

A general tool to obtain automated information detection from photos uploaded. It can provide suggestions for bird species if a bird is detected in the image.

Bird ID Master <http://bird.art/>

A Chinese hobby project that has the capability to automatically identify bird species with an accuracy that is close to commercial products such as Merlin and iNaturalists.

The table outlines the major advantages and disadvantages of each tool.

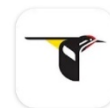
	Merlin	iNaturalist	Google Lens	Bird ID Master
Advantage	Can narrow down search according to defined region in eBird, i.e. Peninsular Malaysia and Malaysian Borneo.	Can narrow down search according to distance to a known record. Can recommend genus or family level for a second layer of recommendations. Can include extended search results of vagrant species that were not previously recorded in the country.	Often preloaded in Android devices, so download is not necessary. A desktop browser version is also available.	Can detect and label the possible ID of more than one bird in the same picture. Can be used on the web-platform, accessed using a browser.
Disadvantage	Cannot identify feral or new vagrants that were not previously recorded.	eBird is a more popular platform to record bird sightings in the country and therefore some records might be missing here for location-based search.	Cannot narrow down species based on locations. Suggestions lead to relevant searched pages, which might not necessarily be a species.	Can narrow down according to a national checklist that is not verified.

Users need to be reminded to only use the recommended ID as a guide, further verification of the ID is required, because:

1. These tools feed in images with species label for the machine to train and understand automatically without caring about actual features seen on the bird. It is like providing many photos to a non-birder to look at and asking them to identify a bird without basing on any actual features seen, but an overall feeling of which species it resembles best.
2. These algorithms will not be able to perfectly segment the birds from the background, sometimes some excessive artifacts created during the segmentation can cause the bird to look rather differently and can lead to wrong recommendations.
3. Some errors will occur during posture estimation because machines do not process different posture easily like humans do; some poor postures can be somehow distorted when they were normalized and might lead to some misidentifications.
4. The current known tools seemed to lump all different plumage of a same species to be trained under the same label, which could potentially confuse the algorithm. It is recommended for categories with very similar plumage between closely related species to be carefully verified manually.

Additional Information on Using the Merlin Bird App

Amar-Singh HSS



**Merlin Bird ID by
Cornell Lab**
Cornell Lab of Ornithology

The Merlin Bird application is an extremely useful tool to aid bird watching and bird identification when in the field. Merlin is powered by eBird and helps you:

- Have a bird guide with photos, sounds, maps, and more.
- Identify the birds you see or hear, with Merlin Bird Sound ID and Photo ID.
- Save the birds you see on the application (keep a life list).
- Explore a list of birds near you from location data or time of year. Extremely useful when you are making a trip to another country or a region in your own country.

The application can be used without an internet connection, making it very useful when bird watching in the jungle or at remote locations. The Merlin Bird app is free to download and is available for Android devices (Android 6 or newer) and iPhones (iOS 15 or newer).

Once you have downloaded the app, you need to download the relevant **Bird Packs** to get the data for the region you are interested in. There are currently Bird Packs available for Malaysia, Borneo and South-East Asia.

You can read more about the Merlin Bird application here:

<https://merlin.allaboutbirds.org/>

Get more from the app with these Merlin Tips and Tricks:

<https://support.ebird.org/en/support/solutions/articles/48000966225-merlin-tips-and-tricks>