

CRIMINAL INVESTIGATION

The most famous of all fictional detectives is doubtlessly Sherlock Holmes. Throughout Doyle's stories, his signature phrase is; "It's elementary, my dear Watson". But in the first episode of the 2010 TV series based on Doyle's work, our detective uses Google's weather app to find out the weather in Cardiff! It's not that elementary anymore, is it my dear Watson?

It is not surprising that detective stories are published in series and air for seasons, or detective novels are brick-thick. Even though, these detectives represent the zenith of the human genius, they solve cases quite slowly by building and testing numerous hypotheses, and as the technology advances, they cannot solve cases without help from technology, as in the example above. Because criminals also use technology. We do not have three hundred pages and weeks to lose in detecting modern criminals. It takes a few hours for a criminal to jump onto an airplane, before the crime they committed is discovered by the law enforcement, and reach the other end of the world. It is incredibly easy to mislead traditional border checks and go abroad with a fake passport or visa. Today, combatting crimes requires the use of many technological tools, including Google weather. Security cameras are one such tool. They can tell you the suspect's gender and age. But knowing these features will not take you far. Because this information only narrows the suspect pool down to several million. However, in order to serve justice, you need to know the answer to a very key and specific question: "Who?"

APFIS gives you the answer to this question.

Biometric data of citizens are stored in a central and high-security database and later matched with the data presented at checkpoints or collected from crime scenes. The management and use of this data for the benefit of the society is vital as citizens should see their trust in delivering their personal data to authorities pay off in the form of safer and peaceful communities and effective law enforcement practices.

Papilon **APFIS**' is designed to allow the authorities responsibly manage and use biometric data and appropriately automate the functions of social state to serve the citizens better in every branch of public life. An acronym for automated palm and fingerprint identification system, APFIS systematizes the use of biometric data in both civil and judicial processes and offers revolutionary solutions that erase many problems from the literature.

Papilon APFIS stores the flat and rolled prints of all ten fingers along with the citizens' demographic information and headshots. Thanks to this rich data source, you can learn how your suspect looks like within seconds just by running a fingerprint inquiry. The speed and high accuracy of Papilon APFIS leaves no time and space to criminals to mislead justice.

Papilon APFIS collects the data of individuals taken for identification purposes or during the construction of tech-friendly citizenship services and stores them in the OP or tenprint dataset. On the other hand, it stores the unidentified prints found in crime scenes in OY, or crime scene, dataset. Every new print entered into the system is queried in both datasets, regardless of the reason for its retrieval. That way, people who had been involved in crimes that have not been discovered or solved, those who have been linked to more than one criminal case, and persons who attempt to mislead justice by committing identity and document fraud can be caught in a matter of seconds. For example, if an OP record matches an OY print, it tells us that the person was involved in a crime that remains unsolved, the matching of two OY records indicate that the subject is involved in more than one crime. Similarly, one print's linking to multiple OP records reveals identity fraud.

Papilon APFIS has
99.9% accuracy rate
in automatically coded OP-OP comparisons.



This means that 99.9% of OP-OP query returns feature the right candidate at the top of the matchlist, making Papilon APFIS the most reliable system in the industry. Queries within the OY dataset are especially challenging since prints in crime scenes may have been deliberately destroyed by the suspects or faded over time. Despite its high performance in OY automatic coding, Papilon APFIS has a manual coding mode that can be used as a provisioning mechanism. In this way, experts can see the evaluations made by the system and make changes if they wish. This ensures that Papilon APFIS also provides accurate results in OP-OY matches.

Especially when there is no visual record or proof about a specific incident, APFIS' rich database serves to the needs of the law enforcement by providing facial images along with fingerprint matches. This allows suspects to be identified without excruciating efforts to retrieve visual data, and saves the officials the trouble to go through every CCTV camera on the route to the crime.

To reach optimum efficiency, accuracy, and speed, our evidence improvement software RASTR can be used alongside APFIS to improve the quality of prints taken with ink, prints that are intentionally damaged or corroded in time, prints taken from extremely dry or wet fingers, and prints taken from children. Thanks to APFIS and RASTR, criminals who think that they misled the justice system by destroying evidence can be caught by benefiting from their own false sense of comfort.

1 *Apfis (noun): Automated finger and palm print identification system*