# Can a Machine Learn to Screen Irregularities?

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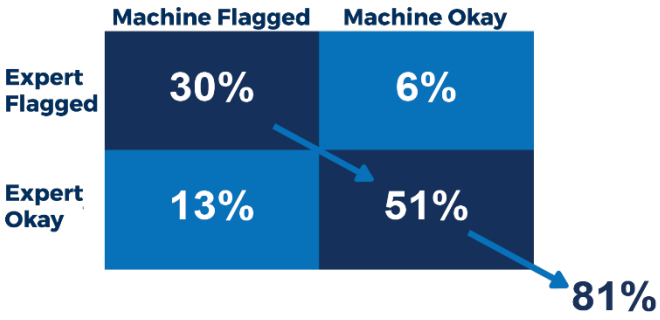
Irregularity screening provides important information on the integrity of test scores. For example, an irregularity report may indicate that a student has used a prohibited device during testing. In such cases, the score should not be reported for the student due to a violation of standard testing conditions. The student's score should also not be included in the psychometric equating process used to adjust test form differences in difficulty. Irregularity screening is typically done by a panel of experts who review the reports provided by test administrators and make a decision on whether an irregularity may affect equating results or not. When there are many irregularities (typically found in online testing), this task is rather time consuming.

With the rapid development of machine learning and artificial intelligence, we believe it is possible to use a computer to help screen irregularities. To investigate this possibility, we trained a machine learning algorithm and applied the trained algorithm to the data collected from an operational program.




### Agreement Matrix: Machine vs. Experts on Screening Irregularities

The agreement between machine and experts is high. The machine algorithm correctly identifies **81%** of the cases identified by experts. For the cases when the machine does not agree with the experts, the machine tends to flag more cases than not.

**The machine learning algorithm has the potential to screen irregularities automatically. It can also pre-screen cases for experts. It will not only save time on preparing data for equating, but also provide consistent and objective results.**