OSAC RESEARCH NEEDS ASSESSMENT FORM

Title of research need:	Detection of Machine Writing versus Human Writing
Keywords:	Machine writing, Autopen, signatures, writing machine, handwriting

R&D Need Rank: Low, Medium, High	Medium	**SAC Approved Date:**	February 3, 2026

Submitting subcommittee(s): Forensic Document Examination

Research Need Summary:

The purpose of these research needs is to build a stronger scientific foundation for forensic science standards. The information provided herein will help to evaluate and strengthen existing standards, and/or fill any standards related gaps. In the space below, please provide a brief narrative of the need to be addressed. This should include:

- The identity of any specific standards that would be affected/improved/evaluated
- A discussion on gaps that exist within the standards or standards related gaps that need to be filled
- How this work would fill those gaps
- An overview of any current or past research efforts that may be relevant to this effort
- A discussion regarding how this research might improve current laboratory capabilities and/or forensic services within the criminal justice system
- Any relevant references

Signing machines (e.g., Autopen, Longpen) are mechanical devices used for replicating a human signature or writing using an instrument such as an ink pen. Machine writing differs from AI-generated writing and does not include human writing on digital capture devices.

ANSI/ASB Standard 070 Standard for Examination of Handwritten Items (First Edition, 2022) requires the FDEs to determine whether writing is original, internally consistent, complex, and contains indications of speed or distortion. Should these procedural requirements also include an assessment or determination if handwriting is produced by a writing/signing machine? Are forensic document examiners knowledgeable in distinguishing between machine writing compared to human writing? There is limited amount of research and publications on this topic.[1]

A research need exists to determine if forensic document examiners can distinguish between machine-generated writing and normally, naturally prepared writing by human hand to fill a gap where limited research has been conducted.

Further research and the development of standard(s) specific to machine-generated writing would increase awareness within the forensic document examination community and improve examiners' ability to recognize the characteristics of machine writing compared to writing prepared by human hand.

References:

[1]Signed by hand or signed by machine?

Jonathan Heckeroth, MSc. (Presented at Association of Forensic Document Examiners 2025 Symposium and American Academy of Forensic Sciences 2025 Annual Conference)

This workshop explores the question of whether signatures were written by hand or by a machine. Participants will be challenged to distinguish between genuine handwritten signatures and machine-written ones by examining a variety of signature samples. The material is based on a 2019 research project conducted by the German Institute for Questioned Document Examination. In addition to the practical component, the workshop includes a presentation on signatures written by machines. Key features that help differentiate between handwritten and machine-written signatures will be discussed, along with recommended procedures for examining signatures produced by signing machines in forensic casework.

This research need has been identified by one or more subcommittees of OSAC and is being provided as an informational resource to the community.