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EUROPEAN NETWORK
OF FORENSIC SCIENCE
INSTITUTES

ENFHEX and EDEWG Joint Meeting 2026

Information Pack



EUROPEAN NETWORK OF
FORENSIC HANDWRITING
EXPERTS



One Evidence, Two Disciplines:

***Reuniting forensic handwriting
and document examination***

29th September to 1st October 2026

LISBON, PORTUGAL



**The European Network of Forensic Handwriting Experts (ENFHEX) and
The European Document Experts Working Group (EDEWG) Steering
Committees welcome your participation at the
Joint Meeting 2026 in Lisbon, Portugal**

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Programme

Monday 28th September 2026

17:00-18:30	Registration – Judiciary Police Headquarters
18:30-20:30	Welcome reception – H10 Boutique Hotel

Tuesday 29th September 2026

LECTURE ROOM 1 – JOINT SESSION

08:30-09:00	Registration
09:00-09:20	Welcome & Introduction
09:20-09:30	Thirty years of ENFHEX and EDEWG – a retrospective Jonathan Morris
09:30-11:00	Forensic handwriting and document examinations in the light of the new ISO 21043 forensic science standard – Keynote Presentation Didier Meuwly
11:00-11:30	<i>Coffee break</i>
11:30-12:30	Beyond the Naked Eye: Digital Tools for Document and Handwriting Examiners Sherni Koh & Nellie Cheng
12:30-13:30	<i>Lunch</i>
13:30-15:00	Electrostatic Detection Device (EDD) Sequencing Workshop Tobin Tanaka, Melanie Holt & Nikolaos Kalantzis
15:00-15:30	<i>Coffee break</i>
15:30-15:40	Multidisciplinary Collaborative Exercises in Forensic Science – Review Maria João Branco
15:40-15:50	Signatures on ID-Documents Barbara Joyce
15:50-16:10	The Signature Came last...or Did It? A case study of alleged blank signatures Nicole Crown & Simon Wyss
16:10-16:50	Sponsors Presentations (10 minutes each) Foster and Freeman, OVD Kinegram, Veralys, Zarbeco
18:00	Buses from Judiciary Police Headquarters for transfer to Doca de Alcântara, for Conference Dinner
18:45-23:00	Social Event and Conference Dinner
23:00	Buses from Doca de Alcântara to Judiciary Police Headquarters

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Programme

Wednesday 30th September 2026

LECTURE ROOM 1 – JOINT SESSION

09:15-09:25	Identification of questioned signatures drawn on paper or digital devices – case study Lukasz Kocielnik
09:25-09:45	Case Study: Supporting Criminal Investigation through Forensic Handwriting Examination Claudio Reis
09:45-10:05	When Ink and Paper Tell the Story: Case Studies Joana André
10:05-10:15	A case specific wording of a handwriting expert's opinion expressing absolute/strong level of negative conclusion Barbora Geistová Čakovská
10:15-10:25	CaseStudy – Intersecting Lines Martina Lunakova
10:25-10:45	Bridging the Gap: State vs Private Forensic Handwriting Examiners in South Africa Marco van der Hammen
10:45-11:15	<i>Coffee break and Group Photo</i>

NOTE:

From 11.15 on Wednesday the meeting will split into two separate Lecture Room. The European Documents Working Group (EDEWG) will continue in Lecture Room 1 and the European Network of Forensic Handwriting Examiners (ENFHEX) will continue in Lecture Room 2.

As the timetable /scheduling is not the same in both rooms we would ask that delegates to try and not switch between Lecture Rooms during sessions as this may cause a disturbance in both rooms. If you have a specific wish to attend a lecture in the alternative Lecture Room then we would ask you to take a seat at the back of the lecture room to minimize inconvenience.



Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Programme

Wednesday 30th September 2026

LECTURE ROOM 1 – EDEWG

11:15-11:35	AAI for Forgery Detection (DOKIQ) Rolf Fauser
11:40-12:00	AAI in Inkjet Printer Classification Rolf Fauser
12:05-12:20	Key Aspects of the Ink Dating Method Using Gas Chromatographic Analysis Hanna Artamonova & Olena Maliei
12:20-13:20	<i>Lunch</i>
13:20-13:40	Advancing forensic document dating: Feasibility of handheld VOC detectors for in situ 2-PE identification Marc Gaudreau
13:45-14:05	Beyond Detection: How High-Quality Counterfeit Residence Cards Can Teach US Sarah Ferry
14:10-14:30	Leasing-fraud with forged vehicle registrations Patrick Haab
14:35-14:55	Untangling Crossing Lines: A Multi-Method Approach for Determining the Order of Intersecting Graphic Lines Zuzanna Bura
14:55-15:25	<i>Coffee break</i>
15:25-15:45	Beyond the visible: Method validation for the detection of indentations using ESDA2 Zuzanna Bura, Marcin Kunicki & Anna Szafrńska
15:50-16:00	The valuable contribution of Spectroscopy to Forensic Document Analysis Manuel Meneghetti
16:05-16:25	From Pen Pressure to Line Sequence Determination: Applications of 3D Scanning in Questioned Document Examination Aysegul Sen Yilmaz
16:30-16:40	Hand made updating in international protection document Gonzalo Liron



Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Programme

Wednesday 30th September 2026

LECTURE ROOM 2 – ENFHEX

11:15-12:30	Skillful Simulations by an Adept Penman Linton Mohammed
12:30-13:30	<i>Lunch</i>
13:30-14:45	Skillful Simulations by an Adept Penman Linton Mohammed
14:45-15:05	A Comparative Study of Explainable Deep Learning Models for Signature Verification Tomasz Dziedzic, Joshua John & Rohit Salgotra
15:05-15:35	<i>Coffee break</i>
15:35-17:15	AI-Generated Handwriting in Forensic Handwriting Examination: Detection, Challenges, and Implications Samiah Ibrahim, Elisa van den Heuvel & Maud Grijpink

Thursday 1st October 2026

LECTURE ROOM 1 -EDEWG

09:15-09:35	Trends in intaglio counterfeiting Jean-Alexandre Patteet & Unige Laskay
09:40-10:00	Digital identities without documents Jörg Greis
10:05-10:15	Digital documents - a terminology challenge Giuliana Schwendener
10:15-10:35	Unveiling the Forger's Workflow: A Multidisciplinary Casework Approach João Cunha & Luís Figueira
10:40-11:00	The Importance of forensic document examination in forensic intelligence production: a case study on profiling of counterfeit republic of Turkiye residence permit documents Ahmet Kuner
11:00-11:30	<i>Coffee break</i>
11:30-13:00	EDEWG BUSINESS MEETING



Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Programme

Thursday 1st October 2026

LECTURE ROOM 2 – ENFHEX

09:15-10:05	AI-Generated Handwriting in Forensic Handwriting Examination: Detection, Challenges, and Implications Samiah Ibrahim, Elisa van den Heuvel & Maud Grijpink
10:05-10:25	Leveraging Software-Aided Workflows to Enable Signature Dating from High-Volume Known Evidence Kevin Kulbacki
10:25-10:45	Beyond right or wrong: Feedback on ENFHEX pilot proficiency test Raymond Marquis, Nicole Crown, Carolyne Bird, Jana Aumeistere, Erich Kupferschmid & Tomasz Dziedzic
10:45-11:15	<i>Coffee break</i>
11:15-11:25	Arabic Handwriting – A Real Case Ana Rojo de Prada
11:25-12:25	Examination of Chinese Signatures: Extending Forensic Expertise Across Writing Systems Nellie Cheng & Sherni Koh
12:30-13:30	ENFHEX BUSINESS MEETING

NOTE:

On the day after the Joint Meeting, Friday, 2nd October, two One-Day-One-Topic Seminars will take place at the same venue:

Document Dating – 09:30–15:00

Teaching Technical Document Control – 09:30–15:00

Participation is limited to those who have registered for the respective seminars.



Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Abstracts

KEYNOTE PRESENTATION

Professor Dr Didier Meuwly

*Principal Scientist - Netherlands Forensic Institute
Forensic Biometrics chair - University of Twente*



Biography

Didier shares his time between the Netherlands Forensic Institute, where he is a principal scientist and the University of Twente, where he holds the chair of forensic biometrics. He specialises in the probabilistic evaluation of biometric data, the validation of likelihood ratio models and identity management.

Didier has served in several international terrorist and war-crime case reviews on request of ICTY, STL, UN, UK and CH. He has (co-)authored more than 65 peer-reviewed publications in forensic science. He is a member of the ENFSI RD standing committee and of the ISO Technical Committee 272, and was an associate and guest editor of Forensic Science International (2011-2026). He is currently involved in the EU project DEFORM and in the ENFSI project 012345 - Finally a forensic ISO standard.

Forensic handwriting and document examinations in the light of the new ISO 21043 forensic science standard

ISO 21043 describes a 4-step process to address the forensic questions:

- the recovery of the items,
- the analysis of these items to obtain observations,
- the interpretation of these observations to obtain opinions
- and the reporting.

A question commonly addressed in forensic handwriting examination is the question of source:

"which writer is the source of the handwriting?".

Forensic document examination focuses more on classification:

"is the document genuine or a forgery?" or on identification: "from which forgery process originates the document?".

The new forensic standard proposes several types of opinions to address these questions, two for the evaluative interpretation (a and b) and one for the investigative interpretation (c):

- a) relative probabilities of the observations given the propositions, the likelihood ratio approach;
- b) categorical opinions on the propositions;
- c) generated explanations for the observations.

This lecture will present and discuss requirements and recommendations of the ISO 21043 standard relevant to the questions addressed in forensic handwriting and document examinations. It will notably focus on the requirements and recommendations for the opinions expressed in form of likelihood ratios or opinions expressed categorically.

WORKSHOPS

Electrostatic Detection Device (EDD) Sequencing

Tobin Tanaka⁽¹⁾, Melanie Holt⁽²⁾ & Nikolaos Kalantzis⁽³⁾

(1) Questioned Document Forensic Laboratory Inc, Canada, (2) Documents in Dispute, Australia & (3) Chartoularios Institute, Greece

The use of EDD to detect and decipher indented writings and markings from office equipment components is well documented in the forensic science literature. When EDDs are used properly the technique is one of the best means to visualise indented impressions. What may not be as well known is the potential for sequencing of intersections of visible writings and indented writings. This workshop will cover the theory and practice of this type of sequencing including interpretation of EDD lifts. No prior technical experience is required.

Beyond the Naked Eye: Digital Tools for Document and Handwriting Examiners

Sherni Koh & Nellie Cheng

Health Sciences Authority, Singapore

As digital document manipulation grows more sophisticated, traditional document examination must evolve with it. Visual inspection alone is no longer sufficient, forensic document and handwriting examiners can benefit from an understanding of digital forensic approaches that help reveal a document's digital history and inform the most appropriate examinations for the investigative purpose. This introductory workshop offers forensic document and handwriting examiners a broad overview of digital forensic techniques used to detect document alteration. Participants will be introduced to methods for examining document metadata and internal file structures, enabling them to identify signs of alteration, uncover hidden revision histories, and recognize anomalies that may suggest manipulation. Through guided practical exercises based on realistic alteration scenarios, participants will examine metadata and file artefacts to identify indicators of tampering and appreciate how different forms of document manipulation can leave distinct digital traces. No prior technical experience is required.

Skillful Simulations by an Adept Penman

Linton Mohammed

Forensic Science Consultants, Inc., United States of America

The forensic examination of signatures is one of the most challenging areas of forensic science due to the limited amount of writing and the variation involved. Forensic Handwriting Examiners (FHEs) are typically asked if a questioned signature is genuine or non-genuine. Simulation of healthy writers' signatures is always a concern for the FHE. The degree of difficulty of simulation can be dependent on the complexity of the target signature. However, there are some skilled writers who are able to simulate even complex signatures at high speed and with great fluency. The normal indicia of simulation such as tremor, even pen pressure, hesitations, and patching are not observed in skillful simulations. Research has shown that skilled calligraphers can produce simulated signatures that can foil experienced FHEs. There are also people without such training who have a natural ability to simulate signatures with a high degree of skill, and with little practice. This workshop will explore the simulations produced by an adept penman. The freehand simulations will include signatures from low to high complexity. No tracings or copy & pasting are involved. Participants will be able to examine sets of signatures and determine which signature in the set is simulated. The ground truth is known and there will always be one simulation in each set. The worksheets provided during the workshop will test the abilities of the participants to determine if a signature is a highly skilled simulation. The full set of worksheets and an answer sheet will be provided to attendees after the workshop. These can be used for self training as well as training other FHEs. The worksheets will be copies, but this should not affect the comparisons. Attendees can work by themselves, in pairs, or in small group depending on the logistics of the conference room.

Joint Meeting of EDEWG and ENFHEx in Lisbon, 2026

Abstracts

AI-Generated Handwriting in Forensic Handwriting Examination: Detection, Challenges, and Implications

Samiah Ibrahim⁽¹⁾, Elisa van den Heuvel⁽²⁾ & Maud Grijpink⁽³⁾

(1) ForensInk, Canada, (2) Eurofins, TMFI/HVA, Netherlands & (3) The Maastricht Forensic Institute (TMFI), Netherlands

It is expected that the use of artificial intelligence (AI) to wholly synthesise handwriting will rapidly transform the landscape of forensic document examination. This workshop, split into both theoretical and practical sessions, will briefly introduce participants to the evolution of handwriting analysis, tracing its historical roots from physical examination of ink and paper to the adoption of digital tools and methodologies. Historically, forensic handwriting experts have relied on the recognition of individual traits, such as letterform design, stroke sequence, and pen pressure to authenticate documents and attribute authorship. However, advancements in AI have enabled the generation of synthetic “handwriting” that can closely mimic genuine human writing, challenging long-established protocols and raising new questions about authenticity. Contemporary challenges now centre on the detection of AI-generated writing, which often lacks the natural variation and subconscious idiosyncrasies found in authentic samples. The absence of physical characteristics in digital documents further complicates analysis, as traditional forensic markers like substrate and ink properties are no longer present. Limited access to comprehensive databases of synthetic writing and the increasing sophistication of generative algorithms add layers of complexity for examiners. This workshop will provide a synopsis of the team’s research into this novel topic; it will explore the current state of AI “handwriting” synthesis, show the results of recent online testing of FHEs and laypersons of AI-generated writings, include a practical set of exercises to allow attendees to benchmark their own abilities in recognising these writings, and discuss why adapting forensic practices is essential.

Examination of Chinese Signatures: Extending Forensic Expertise Across Writing Systems

Nellie Cheng & Sherni Koh

Health Sciences Authority, Singapore

Forensic handwriting examiners routinely apply rigorous analytical frameworks to signature examination and the principles underlying that expertise translates well across writing systems. As international mobility and multicultural populations continue to grow, examiners may increasingly encounter signatures and handwriting originating from scripts outside their usual experience. Chinese signatures present a particularly interesting area for study due to their distinctive structural characteristics, including logographic composition, stroke sequencing, radical structures (bushou), and a wide spectrum of stylisation that ranges from legible characters to highly abstract personal marks. This workshop, developed by the Health Sciences Authority (HSA) of Singapore, provides an opportunity for participants to expand their expertise through the examination of a writing system that differs fundamentally from alphabet-based scripts. A brief presentation introduces the key characteristics and forensic indicators relevant to Chinese signature comparison. Hands-on practical sessions complement the presentation, giving participants the opportunity to apply these concepts directly. Group discussion and live polling encourage the exchange of perspectives throughout. By the end of this workshop, participants will walk away with a sharper eye for the nuances of Chinese signature examination and a practical framework that may prove valuable in future casework.



Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Abstracts

JOINT PAPERS

Thirty years of ENFHEX and EDEWG – a retrospective

Jonathan Morris

Scottish Police Authority, United Kingdom

The inaugural meetings of the European Conferences for Police and Government Experts ECPGDE and ECPGHE were held in 1988. In 1996 ENFHEX was founded, with acceptance by ENFSI in 1998. In London in 1996 a similar ENFSI working for document examination was proposed. In 1998 both Conferences were held at the Scottish Police College, Tulliallan and thus became the first Joint meeting of EDEWG and ENFHEX. This brief historical reflection will detail the developments of the two working groups.

Multidisciplinary Collaborative Exercises in Forensic Science – Review

Maria Branco

LEDEM - University of Porto, Portugal

Historically, Collaborative Exercises (CEs) have focused on individual forensic disciplines. However, EU-funded projects such as STEFA Monopoly (2016), CERTAIN FORS (2018), and FOR FUTURE (2022) introduced multidisciplinary CEs involving interaction between laboratory-based practices. This presentation reviews exercises involving Handwriting and Document Examination, highlighting their value in demonstrating the reliability, consistency, and accuracy of forensic processes and services.

Signatures on ID-Documents

Barbara Joyce

Bundeskriminalamt (BKA), Germany

Signatures on ID-Documents are valuable help for signature examination. Investigation authorities have access to signatures stored at registration authorities. A few things concerning such signatures should be taken into account. Some experience and insight in the collection process of signatures for ID-documents will be shared.

The Signature Came last...or Did It? A case study of alleged blank signatures

Nicole Crown & Simon Wyss

Forensic Science Institute Zurich

In this presentation we describe several approaches to the examination of alleged blank signatures and present an unusual case involving three documents purportedly signed in blank, each exhibiting different characteristics and / or background story. We demonstrate how the combined evaluation of document and handwriting evidence provided valuable insight whether the signatures had been placed on blank sheets before the documents were produced.

Identification of questioned signatures drawn on paper or digital devices - case study

Łukasz Kocielnik

Central Forensic Laboratory of the Police

The presentation focuses on signature forgery using various methods, which will be discussed at the outset. The literature accepts the following types of signature forgery: technical copying, direct through a clear medium, indirect copying – carbon paper, close imitation, imitation from memory, learned imitation, intellectual imitation. The presentation will feature examples from cases handled by the Polish Police. These involve both signatures written on paper or digital devices.

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Abstracts

Case Study: Supporting Criminal Investigation through Forensic Handwriting Examination

Claudio Reis

Laboratorio de Polícia Judiciária, Portugal

This presentation outlines a case study demonstrating the contribution of forensic handwriting examination to a criminal investigation involving a large volume of questioned specimens. It highlights the interaction between forensic experts and investigators, illustrating the practical value of forensic handwriting expertise in supporting investigative strategies and judicial proceedings in complex cases.

When Ink and Paper Tell the Story: Case Studies

Joana Andre, Raquel Ferro & Ana Cristina Assis

Laboratorio de Polícia Judiciária, Portugal

The forensic examination of inks and paper plays a key role in questioned document analysis. This presentation describes selected case studies involving the chemical examination of writing inks and the characterization of paper substrates. Using complementary analytical techniques, the cases address issues such as ink comparison, discrimination of similar materials, detection of document alterations and paper comparison, illustrating the value of integrated forensic interpretation.

A case specific wording of a handwriting expert's opinion expressing absolute/strong level of negative conclusion

Barbora Geistova Cakovska

Institute of Forensic Science, Slovakia

This lecture will require an interactive approach of the participants, inviting them to express their experience and opinions on a specific case. They will be presented with a situation where an expert is provided with a questioned signature and sufficient quality and quantity of the known signatures, that are, however, of a different style than the questioned signature. There is a small proportion of comparable details, and some differences can be found in some specific features of the questioned and known signatures. The expert's opinion is expressed by the following wording contained in the conclusion: "The questioned signature is not a genuine signature of the writer XY", which he prefers to use over the conclusion "The questioned signature was not written by the writer XY", or any other conclusion. Why the expert prefers the choice of the wording, how it can be interpreted, what are possible consequences or associated considerations, will be drafted in the presentation and the auditorium will be invited to share their ideas, approaches, and experience.

Case study - Intersecting lines

Martina Lunakova

Institute of Criminalistics Prague, Czech Republic

The paper describes a case of the questioned contract examination. The task for the expert was if the text was printed consequently. The document was made by the inkjet printing and signed by a gel pen. Optical features of the pen ink was evaluated and compared with the Pen Ink Library. Comparative crossing by an adequate pen was prepared and evaluated. The conclusion was, that there are no differences as with the stroke written after printing.



Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Abstracts

Bridging the Gap: State vs Private Forensic Handwriting Examiners in South Africa

Marco van der Hammen, Martinus du Toit & Peter Bouwer

Forensic Document & Handwriting Institute, IT Empowerment Technologies, South Africa

Globally, it is not uncommon that state and private forensic handwriting examiners (FHEs) often disagree, and similar conflicts can arise among private FHEs themselves. In South Africa, the same holds true, with both sides often clashing over issues like training, quality standards, contextual bias, limited and unverified comparison material, complex forgeries and variations in handwriting styles across national and international scripts, often leading to conflicting expert testimonies in court. Currently, no governing body determines who qualifies as an acceptable handwriting expert witness in a court of law. As a result, anyone who believes they have knowledge of handwriting analysis may present themselves as a handwriting expert. Subsequently, many graphologists have emerged as opposing “forensic handwriting examiners”, posing serious risks to legal cases, mainly due to the nature and extent of their training and lack of scientific training required to authenticate documents. 'Bridging the gap' between State and Private FHEs and private FHEs mutually will require overcoming core traditional divides in, among others, training, methodologies and credentialing. This paper deals with the initiating of a medium/ long-term project to address and reduce the identified gaps.

EDEWG PAPERS

AAI for Forgery Detection (DOKIQ)

Rolf Fauser

Honorary Member of EDEWG & University of Media/University of Police Baden-Wuerttemberg, Germany

The realised research project was initiated 2020 by Rolf Fauser of the State Office of Criminal Investigation, FSI, Stuttgart, Germany. The goal of the project was to research and develop an AI-supported processing and investigation environment that can accelerate the authentication and verification of issuance data for identity documents. Current versions of the DOKIQ system are now also in use at other state offices of criminal investigation. The latest development status is shown.

AAI in Inkjet Printer Classification

Rolf Fauser

Honorary Member of EDEWG & University of Media/University of Police Baden-Wuerttemberg, Germany

AI-supported determination of the inkjet printer type would be nothing more than a vision. In reality, the distribution of droplets on paper varies depending on the type of printer. The question was whether machine AI learning methods could determine the printer type based on certain characteristics. The tool was made available online to the EDEWG. In July 2024, the developed method was successfully published in Yokohama, Japan, at the IEEE WCCI World Congress on Computational Intelligence.

Key Aspects of the Ink Dating Method Using Gas Chromatographic Analysis

Hanna Artamonova & Olena Mailei

Kyiv Scientific Research Institute of Forensic Expertise, Ukraine

Main approaches to determining the age of document entries using gas chromatography are discussed. The volatile components of ink samples are analyzed by gas chromatography with a flame ionization detector, while dyes are examined by UV–Vis spectroscopy. The study requires reference samples. The reference documents should cover the period from the date indicated in the questioned documents to a date determined by the circumstances of the case. Practical case studies of ink dating are presented.

Advancing forensic document dating: Feasibility of handheld VOC detectors for in situ 2-PE identification

Marc Gaudreau⁽¹⁾ & Annie Vallieres⁽²⁾

(1)ForensInk, Canada & (2) Canada Border Services Agency, Canada

Handheld volatile organic compound (VOC) detectors may offer rapid, non-destructive screening for 2-phenoxyethanol (2-PE) in ballpoint ink, supporting forensic document dating. This ongoing study evaluates whether ppb-level portable detection can identify recent ink deposition despite low vapour pressure. While less selective than GC-MS, these tools could improve field triage when paired with confirmatory laboratory analysis.

Beyond Detection: How high-quality counterfeit residence cards can teach us

Sarah Ferry

National ID Centre, Denmark

High-quality counterfeits are more than threats being detected- they are valuable resources of knowledge that help us improve training of 1st line staff. We will review three generations of counterfeit Danish residence permits, and how the evolution of production techniques used by the forgers have informed us and helped us in creating evidence-based training materials in order to mimic real-life cases. A key component - collaboration on a global scale with other document laboratories!

Leasing-fraud with forged vehicle registrations

Patrick Haab

Forensic Science Institute Zurich

This visual examination of questioned swiss vehicle registrations highlighted the importance of reliable reference material. Furthermore, bitmap decoding proved to be an very effective tool to link the documents to the same source.

Untangling Crossing Lines: A Multi-Method Approach for Determining the Order of Intersecting Graphic Lines

Zuzanna Bura

Institute of Forensic Research in Kraków

Determining the sequence of crossing lines remains a key mystery in document examination, as no single ideal method exists. To address this issue, a number of studies were conducted employing various imaging and analysis techniques-including photostereoscopy, microscopy, and profilometry-were tested, even on damaged documents. This research aims to develop a comprehensive methodology combining different tools, effectively eliminating individual limitations and enabling reliable analysis.

Beyond the visible: Method validation for the detection of indentations using ESDA2

Zuzanna Bura, Marcin Kunicki & Anna Szafrńska

Institute of Forensic Research in Kraków

ESDA2 detection is influenced by variables such as paper type, writing instruments, and humidity, all of which we investigated in our study. Additionally, indentations were produced by volunteers at varying writing speeds and pressures, continuously monitored using a Wacom Signature Pad. An image overlay technique was applied using ImageJ software, enabling a detailed comparison of revealed impressions with original input data. Based on the results, ESDA2 method validation was conducted.

The valuable contribution of Spectroscopy to Forensic Document Analysis

Manuel Meneghetti

RaCIS – Carabinieri, Italy

Threatening communication produced with Laser printer were sent to a member of an organisation in two separate envelope. Investigative enquiries identified a specific organisation with access to some of the information contained in the letters. Thirty test print samples were collected and analysed combining traditional document examination and material analysis on the toner. Integrated morphological, physical and chemical findings linked the questioned documents to a limited group of printers.

From Pen Pressure to Line Sequence Determination: Applications of 3D Scanning in Questioned Document Examination

Ayşegül Şen Yılmaz & Faruk Aşıcıoğlu

Istanbul University- Cerrahpasa, Türkiye

Pen pressure and sequence of pen lines determination are important examination criteria in questioned document analysis. However, the assessment of these features is usually based on subjective observations, while objective and practical measurement methods are still limited. This study aimed to evaluate the potential of low-cost 3D surface scanning for the quantitative analysis of groove characteristics and surface profiles of paper, and to investigate its applicability to questioned document analysis, which has problems with pen pressure assessment and pen line sequence determination. Handwritten lines and intersecting lines were produced under controlled circumstances using different pen pressures, writing instruments, ink colours and substrate conditions. The samples were scanned with a handheld 3D scanner, and the resulting 3D images were analyzed using specialized software developed for profile extraction and quantitative analysis. Groove morphology of lines and intersected area, and depth profiles were studied. Blind tests were also carried out to test the reliability of the determination of line sequencing. Quantitative differences in groove depth were found between different pen pressure levels with deeper paper indentations achieved with higher pressures. Characteristic surface profiles were identified at line intersections, where the first-drawn line exhibited a pronounced trough, whereas only small fluctuations were observed in the profile of the second line. The observed surface profiles were largely independent of ink colour, writing instrument, and substrate conditions. Blind testing provided an accuracy of 82% in line sequence determination. Low-cost 3D surface analysis provides a rapid, non-destructive, and objective method for quantifying groove characteristics and surface profiles in questioned documents. The 3D scanning method provides measurable physical evidence that may support pen pressure assessment, line sequence determination, and the examination of suspected document alterations. These findings demonstrate the potential of 3D scanning as a practical tool for routine questioned document examination.

Hand made updating in international protection document

Gonzalo Lirón Álvarez

Guardia Civil, Spain

This presentation focuses on how simple it is to refresh and update a genuine, low-tech document.

Digital identities without documents

Joerg Greis

Bundeskriminalamt (BKA)

In this presentation, the Digital Travel Credentials (DTC) and EUDI-Wallet projects are presented from the BKA's perspective. In addition to a presentation of the respective general use cases and benefits as well as the current status of specifications and legal regulations, the focus is particularly on the cryptographic binding of these digital identities to physical documents and on specific challenges and risks that arise when a digital identity solely relies on a mobile phone without any underlying physical document as a fallback hardware token. Furthermore, possible changes to the security level when verifying identity are discussed and what impact these topics will have on the tasks of document experts.

Digital documents - a terminology challenge

Giuliana Schwendener

Norwegian ID Centre, Norway

The term "digital document" is widely used but often poorly defined. This presentation examines various forms of digital documents, including PDFs and scanned documents, QR code-based credentials, chip-based documents, and digital driver's licenses. By highlighting their differences, it seeks to encourage discussion on whether more precise terminology is needed and how such terminology could be established.

Unveiling the Forger's Workflow: A Multidisciplinary Casework Approach

Joao Cunha & Luis Figueria

Laboratorio de Polícia Judiciária, Portugal

This casework presentation highlights the dismantling of a sophisticated counterfeiting operation, demonstrating the critical synergy between forensic document examination and digital forensics. Seized evidence included credible counterfeited ID cards and residence permits and six different printing devices, encompassing laser engraving, dye sublimation and thermal transfer technologies. The document examination yielded two major breakthroughs. First, data extracted from consumed dye sublimation and thermal transfer ribbons established a direct link between the seized hardware and the counterfeit documents. Second, the careful analysis of the forged IDs, correlated with the manufacturer data of the seized laser engraver, exposed the suspects' experimental methods for simulating the tactile relief characteristic of genuine laser-engraved documents. Following, these physical findings were cross-referenced with digital evidence extracted from seized computers. Access to the suspects' original images montages and digital editing workflows allowed examiners to know and establish the production cycle of the counterfeiters. This case underlines the value of a multidisciplinary approach. It proves that combining traditional examination, such as ribbon data extraction and the analysis of simulated security features, with digital forensics is vital to fully decode modern forgery workflows.

Trends in intaglio counterfeiting

Jean-Alexandre Patteet & Unige Laskay

SICPA SA, Switzerland

Intaglio printing is the oldest and one of the most effective and widely recognized security features used on banknotes and other security documents. Due to its distinctive tactile and visual properties, it represents a significant barrier to counterfeiting since many decades, making the faithful reproduction of genuine intaglio particularly challenging. However, counterfeiting techniques continue to evolve. Attempts to simulate intaglio printing have progressed from simple embossing methods (designed to mimic the tactile feel of raised ink) to increasingly sophisticated approaches. These latter techniques utilize relief printing and other processes capable of generating convincing three-dimensional effects. Although these simulations can replicate some aspects of genuine intaglio, significant differences remain in their morphology, ink deposition, and overall appearance. To overcome the risk that emerging scanning and printing technologies pose to the security document environment, it is necessary to enhance the unique physical and optical properties of genuine intaglio printing.

The Importance of forensic document examination in forensic intelligence production: a case study on profiling of counterfeit republic of Türkiye residence permit documents

Ahmet Kuner

Department of Police Forensic Laboratories (KDB), Türkiye

In this study, the potential of Forensic Document Examination in the production of Forensic Intelligence is presented. In the study; 56 counterfeit Republic of Türkiye Residence Permit Documents were examined, and after a two-stage classification process, two different document profiles as General Profile 1 (GP1) and General Profile 2 (GP2) were determined according to specific features. In order to evaluate the profiles named GP1 and GP2 together with other documents, the specific features (11) that consist of each general profile were converted into a vector, vectorial indexes were created as a result of interviews with Forensic Document Experts, and cosine

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Abstracts

similarity was employed to calculate the correspondence/similarity between vectors. While conducting the study, optical/physical examinations were carried out using the data and devices (VSC 6000/HS) of the Istanbul Regional Forensic Police Laboratory, and classification and profile research was implemented within the specified scale. According to the results achieved in the study, the lowest similarity rate was 71% and the highest similarity rate was 96%. This situation is crucial in terms of demonstrating an undeniable fact and a very critical potential regarding the existence of a manufacturer/factory/source that produces counterfeit documents by using certain methods and techniques, utilizing archival/catalogue information and undergoing the same production process.

ENFHEX PAPERS

A Comparative Study of Explainable Deep Learning Models for Signature Verification

Tomasz Dziedzic⁽¹⁾, Joshua John⁽²⁾ & Rohit Salgotra⁽²⁾

(1) Institute of Forensic Research in Krakow & (2) AGH University of Krakow, Poland

This research focuses on the development and comparative evaluation of machine learning methods for forensic signature verification. Traditional forensic handwriting examination requires specialist expertise and detailed manual comparison, which can be time-consuming and may involve subjective interpretation. Although modern deep learning methods have improved automated signature verification, many existing systems remain difficult to interpret, limiting their usefulness in legal and forensic contexts. The proposed study aims to design an interpretable framework for offline signature verification using the GPDS and CEDAR datasets. Signature images will undergo consistent preparation and normalization, while writer-disjoint training, validation, calibration, and testing will prevent data leakage, i.e. cross-set contamination. Four feature-extraction models will be compared under the same triplet metric-learning framework: a simple convolutional neural network, SigNet, a CNN-BiLSTM model, and a proposed signature-adapted Small Vision Transformer (ViT-S) model. The proposed model will combine a lightweight convolutional patch-embedding stage for local stroke continuity with transformer self-attention for broader spatial relationships. Triplet loss with hard-negative selection will encourage genuine signatures from the same writer to form compact clusters while separating skilled forgeries and signatures from other writers. Special attention will be given to forensic explainability through visual explanation maps, feature attribution, and measurable handwriting characteristics such as slant, spacing, contour irregularity as a cautiously interpreted proxy for possible tremor related variation, stroke-width variation, and stroke patterns. The models will be evaluated using Equal Error Rate, False Acceptance Rate, False Rejection Rate, ROC-AUC, and F1-score. Their similarity scores will also be transformed into calibrated likelihood ratios to support the communication of evidential strength in forensic reporting. The expected contribution is an automated signature verification framework that combines comparative performance, transparency, and forensic relevance. The framework is intended to support forensic handwriting examiners in decision-making and to provide empirically evaluated decision support and more transparent evidence for forensic signature examination.

Leveraging Software-Aided Workflows to Enable Signature Dating from High-Volume Known Evidence

Kevin Kulbacki

KDX Forensic Consulting, LLC

Handwriting examinations are often constrained not by methodology but by the practical burden of evidence volume, and nowhere is this more apparent than in signature dating, where a conclusion depends on establishing a writer's range of variation across many years. This presentation offers a case study in which software-aided evidence processing transformed a large, unorganized body of known signatures into the foundation for a dating conclusion that would otherwise have been unreachable.

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Abstracts

Beyond right or wrong: Feedback on ENFHEX pilot proficiency test

Raymond Marquis⁽¹⁾, Nicole Crown⁽²⁾, Carolyne Bird⁽³⁾, Jana Aumeistere⁽⁴⁾, Erich Kupferschmid⁽²⁾ & Tomasz Dziedzic⁽⁵⁾

(1) University of Lausanne, Switzerland (2) Forensic Science Institute Zurich, Switzerland, (3) Forensic Science SA, Australia., (4) State Forensic Science Bureau, Latvia & (5) Institute of Forensic Research in Kraków, Poland

In 2025, ENFHEX made available a pilot proficiency test on signature examination to FHEs internationally. The test package included 10 sets of signatures, intended to reflect the variability encountered in case work in terms of case difficulty, signature type and complexity, and extent of variation between known samples. Each set had a range of expected answers defined. That range was based on answers of pre-testers, as well as parameters such as the ground truth, signature complexity, variation between known samples, dynamic features, comparison findings, limitations, and a general assessment of the task difficulty. In this pilot test, answers are no longer considered to be simply right if in line with the ground truth, or wrong otherwise. In this new approach, the answers are expected to fit within the range that is anticipated based on the case specifics. In some cases, that range might include opinions opposed to the ground truth, due to case limitations or ambiguous evidence. In other cases, that range might exclude answers in line with the ground truth but considered too low or too high in strength. This presentation outlines the approach to test design and provides an overview of the participants' results. It focuses on difficult sets, arguing that the strength of the evidence should reflect the risk of pointing towards the hypothesis opposed to the ground truth. Answers falling outside the range of expected answers are not necessarily classified as errors. Rather than simply distinguishing between right and wrong. answers, the feedback aims to encourage participants to reflect on whether their conclusions are adequately supported by the observed features, the limitations of the material, and the reasoning underlying the reported degree of support.

Arabic Handwriting – A Real Case

Ana Rojo de Prada

Guardia Civil, Spain

The study of Arabic handwriting currently represents one of the most critical challenges for Civil Guard's Forensic Service, given its significance in the fight against jihadist terrorism and radicalization. Handwriting analysis for this type of non-Latin language presents a series of challenges that are addressed through immersion in the study of Arabic language, as well as by adapting the Civil Guard's handwriting analysis methodology to the specific characteristics of the language in question. The importance of combating terrorism requires experts to stay up to date in the study of the Arabic language through continuous training, as well as through international relations with specialists in the field.

POSTERS

Examination of Documents with Signs of Artificial Aging

Olena Maliei & Hanna Artamonova

Kyiv Scientific Research Institute of Forensic Expertise, Ukraine

Artificial aging and the influence of external factors, such as sunlight, heating, and other environmental conditions, may significantly affect document materials and complicate forensic examinations, especially ink dating studies. The presented approach includes the identification and assessment of signs of artificial aging as a mandatory stage of the preliminary examination in document dating. Signs of artificial aging can be detected using visual, microscopic, and physicochemical methods. They may be revealed either during non-destructive examination of the document or through the analysis of the composition and properties of document materials. The assessment of these signs helps determine whether a document is suitable for further dating examination and whether reliable results can be obtained.

Chemical Characterization of Ballpoint Pen Inks By LC-HRMS

Marta Guinote, Joana André, Raquel Ferro & Ana Christina Assis

Laboratorio de Polícia Judiciária, Portugal

Forgery and document alteration are significant concerns in forensic investigation, particularly in cases involving signatures, contracts and financial records. Although ballpoint pen inks are complex mixtures of dyes, solvents, resins, lubricants, surfactants, biocides and other chemical components, non-destructive methods, such as optical analysis, do not always allow reliable differentiation between samples, thereby requiring the application of alternative analytical strategies. In this study, a liquid chromatography-mass spectrometry method with electrospray ionization (LC-ESI-MS) was developed and optimized for the chemical characterization of blue and black ballpoint pen inks. The extraction procedure consisted of drawing a line of ink on the paper substrate, followed by the removal of six circular sections from the sample using a micropunch. The collected sections were extracted with 40 µL of methanol and subsequently analysed using the developed method. The method was subsequently applied to 41 ballpoint pens, comprising 21 blue and 20 black pens. The combination of chromatographic separation and mass spectrometric detection enabled the efficient separation and characterization of multiple compounds present in the complex ink samples. Dyes belonging to the triarylmethane family, including Crystal Violet, Violet Blue B, Victoria Pure Blue BO and Ethyl Violet, as well as the xanthene dye Rhodamine B, were detected. Demethylation products of Crystal Violet and Violet Blue B, as well as dealkylation products of Victoria Pure Blue BO and Ethyl Violet, were also observed. Michler's ketone was also detected, providing additional chemical information for ink characterization. In addition to these analytes, other unknown compounds present in the inks were also detected. Method performance was evaluated in terms of repeatability, selectivity, specificity, detection limit and robustness. Overall, the developed LC-ESI-MS method provided detailed chemical profiles of blue and black ballpoint pen inks and demonstrated potential for their differentiation and comparison in forensic document examination.

Beyond the Signature: A Multi-Faceted Forensic Approach to Fraud Investigation

Nicola Musgrave

Eurofins Forensic Services, United Kingdom

An intriguing fraud investigation highlighting how the integration of forensic handwriting analysis and document examination was crucial in piecing together the evidence and reconstructing the chain of events. Through physical fits of paper, the examination of indented impressions, and signature comparisons, investigators were able to establish not only who was responsible, but also when key events occurred within the fraud.

From Allographs to Radicals: Adapting Latin Script Examination Frameworks to Chinese Questioned Documents

Sincere Ip

Canada Border Services Agency, Canada

Rapid globalization and expanding transnational migration networks have fundamentally altered the landscape of forensic document examination. According to Statistics Canada, the Chinese population in Canada doubled between 1996 and 2021, reaching 1.7 million people and accounting for 4.7% of the national population. Notably, nearly 87% of Chinese immigrants who arrived between 1998 and 2021 were born in mainland China, bringing a vast influx of native non-Latin script writing habits into the country. Consequently, immigration, intelligence, and border security agencies such as the Canada Border Services Agency (CBSA) have seen a significant and continuous influx of cases involving Chinese characters. While most forensic document examiners traditionally trained in Western, alphabet-based systems may shy away from these cases, many of the techniques and features they are already familiar with can be cross-trained and used for logographic systems. This poster aims to provide practical guidelines and techniques to bridge this knowledge gap. It demonstrates how forensic document examiners can systematically transition their familiar, Western-optimized analytical concepts to evaluate the structural mechanics of Chinese script, even without the linguistic fluency

Forged Wills and Serial Inheritance Fraud: A Forensic Handwriting Case Study

Sebastiana Cardinale

Servizio Polizia Scientifica, Italy

When wealthy individuals die alone and their deaths go undiscovered for months, their estates become vulnerable to fraudulent claims. This case concerns a criminal organisation operating across several Italian cities that systematically targeted the estates of wealthy, heirless individuals. The fraud relied on two types of forged wills: holographic wills falsely attributed to the deceased and wills purportedly drawn up before Italian-American notaries in New York, accompanied by simulated apostilles. Subsequent inquiries established that the purported notaries did not exist. The forensic handwriting examination was structured into three levels. First, comparison with authentic reference handwriting samples established that both the testators' signatures and the body text of the holographic wills were forged. Second, comparison of the body text and signatures throughout the documents with the suspects' handwriting samples made it possible to attribute, with certainty, large portions of the documentary corpus to a limited number of writing hands traceable to members of the organisation, including the writings and signatures produced in the names of the fictitious notaries. Third, examination of the apostilles revealed that the certifying signatures were not handwritten and that the stamp impressions had not been applied with wet ink, but had been reproduced by electrophotographic laser printing. The analysis thus exposed the forgery and reconstructed the distribution of the writing hands across the corpus, confirming the decisive role of comparative handwriting analysis in countering serial inheritance fraud.

Polymer Banknotes: A Forensic Perspective on Security, Counterfeiting and Usability

Sofia Timóteo, Filipe Relveiro & José Antas

Laboratorio de Polícia Judiciária, Portugal

The use of polymer substrates for banknote production has increased significantly in recent decades, with more than 45 countries currently issuing polymer banknotes. Biaxially oriented polypropylene (BOPP) is the most commonly used substrate due to its durability and resistance to the conditions associated with banknote circulation. The transition from paper to polymer has introduced significant changes in banknote design, security features and physical characteristics, while also presenting advantages and challenges from environmental, economic, user and forensic perspectives. This study aims to examine polymer banknotes from a forensic perspective, with particular emphasis on the relationship between the substrate and the security architecture of the banknote. A comparative examination of paper and polymer banknotes will be conducted, focusing on substrate characteristics, printing techniques and security features, including transparent windows, optically variable devices and fluorescent elements. Selected polymer banknotes from different countries and denominations will also be considered in order to identify common approaches and variations in the use of security features. From a forensic perspective, the transition to polymer represents more than a simple change in substrate. Some security features traditionally associated with paper banknotes, such as watermarks, security fibres and conventional security threads, are no longer applicable, while polymer enables the integration of other features that make use of its transparency and physical properties. Furthermore, the characteristics of the polymer substrate itself may contribute to resistance against reproduction and counterfeiting, while simultaneously requiring examiners to recognise and interpret different characteristics during forensic examination. The study will also consider the broader advantages and challenges associated with polymer banknotes, including durability, resistance to water and dirt, recyclability, production costs and handling characteristics. By combining these aspects with the forensic examination of selected banknotes, this work aims to provide an integrated perspective on the transition from paper to polymer and its implications for banknote security and counterfeit examination.

Fraud involving counterfeit revenue stamps affects judicial documents and administrative procedures

Anna Della Rocca

Italian National Police, Italy

The results of technical examinations conducted in August 2019 on 94 revenue stamps helped dismantle a criminal organization responsible for issuing over 50,000 forged medical certificates, many of which bore counterfeit revenue stamps. There are two different techniques of falsification: one using an original stamp (usually 0.26 cents), the other with coils produced in China. In both cases the falsification is perfected cloning of a bar code identifying a real revenue stamp.

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Abstracts

Conservation Approach to Thermal Printer Ribbon Preservation and Imaging

Caroline Bernier⁽¹⁾, Sincere Ip⁽¹⁾, Tobin Tanaka⁽²⁾ & Helen Kolodziejczyk⁽¹⁾

(1) Canada Border Services Agency, Canada & (2) Questioned Document Forensic Laboratory Inc, Canada

Cases involving counterfeit identity documents have led to an increase in submissions of used thermal transfer ribbons to the Canada Border Services Forensic Document Examination Section. Our team was required to find a method of preserving ribbon integrity while still allowing for imaging in a way that would limit the amount of handling, prevent damage, and facilitate the comparison and association with seized counterfeit documents. This poster presents the conservation approach chosen and addresses the reasoning behind the choices made.

Copying Artefacts on Classified Documents

Daniela Höllersberger & Julia Franz

Forensic Science Service, Federal Ministry of the Interior, Austria

Jan Marsalek, a member of the Executive Board of the German financial services company Wirecard from 2010 to 2020, is suspected of having spied for the Russian intelligence services. In 2018, he allegedly passed six highly confidential documents originating from the Organisation for the Prohibition of Chemical Weapons (OPCW), including reports and the formula for the Novichok nerve agent related to the poisoning of Sergei Skripal, to a journalist from the Financial Times. Marsalek could not be interviewed during the investigations, as he has been a fugitive since June 2020. He is the subject of an international arrest warrant on charges including organized commercial fraud and other serious financial offences. According to publicly available information, he is believed to be residing in Moscow. In April this year, criminal proceedings were conducted against a senior official of the Austrian Ministry of Foreign Affairs, who was accused of having transmitted copies of the six confidential OPCW documents to Jan Marsalek via a former liaison officer. The copies of the six questioned documents that were handed over to the Financial Times journalist became the subject of an extensive forensic document examination. The investigation focused on the analysis of process-induced artefacts generated during the scanning and printing stages of the reproduction process. These artefacts were systematically examined and compared. The results enabled the questioned documents to be conclusively associated with the specific source copies from which they had been reproduced. Furthermore, analysis of the Bitmap-MIC led to a printer listed in the inventory of Wirecard.



Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Biographies of presenters

Joana André

Joana André is a Scientific Police Specialist at the Forensic Science Laboratory of the Judiciary Police in Lisbon, Portugal since 2023. She built a strong academic foundation at the Faculty of Sciences at the University of Lisbon, where she earned both a Bachelor's and a Master's degree in Chemistry between 2016 and 2021. This background provided deep expertise in chemical analysis, laboratory methodologies and scientific problem-solving, important for the beginning stages of her working career that started as a quality control analyst in a pharmaceutical company back in 2021. Over the past 3 years, as a Scientific Police Specialist, Joana André has focused on forensic analysis, leveraging a wide range of advanced analytical techniques to conduct expert examinations. She is currently working in the Physics-Chemistry Sector, where she does analysis of writing inks, toners, inkjet prints, and paper, alongside document dating. Additionally, her analytical work extends to the analysis of fire debris, defense sprays and explosives.

Hanna Artamonova

Hanna Artamonova is a Leading Forensic Expert at the Kyiv Scientific Research Institute of Forensic Expertise of the Ministry of Justice of Ukraine. She began her professional career as a Junior Researcher at the V.I. Vernadsky Institute of General and Inorganic Chemistry of the National Academy of Sciences of Ukraine, where she received her PhD in Inorganic Chemistry in 2015. Since 2017, she has been working at the Kyiv Scientific Research Institute of Forensic Expertise. She is currently a member of the Department of Document Materials Examination of the Laboratory of Special Types of Research. Her professional activities focus on questioned document examination, particularly the analysis of document materials such as ballpoint pen inks, dyes, and paper, as well as the dating of documents. Her research interests include chromatography, dyes, writing materials, ink dating, and the examination of documents with signs of artificial ageing. She has been involved in ink dating examinations since 2017 and applies physicochemical analytical methods in forensic casework. Hanna regularly participates in professional conferences and expert meetings on questioned document examination and ink dating.

Caroline Bernier

Caroline Bernier is a forensic document examiner with the Canada Border Services Agency (CBSA) in Ottawa, Canada. She holds a Bachelor of Science Degree from the Université du Québec à Trois-Rivières in chemistry (forensic science profile). She also holds two certificates from the Université de Montréal in Criminology as well as Investigation and Intelligence. Ms. Bernier completed her training under the guidance of senior forensic document examiners at the CBSA in 2023. She is a member of the Documents Section of the Canadian Society of Forensic Science.

Maria João Branco

Maria João Branco is a Senior Handwriting Examiner at LEDEM (Laboratory of Document and Handwriting Examination) of the University of Porto, Portugal. She has worked as a handwriting examiner for more than 20 years and has lectured in postgraduate programmes in Forensic Sciences at the University of Porto. In 2019, she was appointed Secretary of the ENFHEX Steering Committee. Since 2016, she has actively participated in several ENFSI Monopoly Programmes. Through these initiatives, she has contributed to the development of key documents and tools aimed at strengthening the discipline of forensic handwriting examination, including the Best Practice Manual for DCS, the expansion of the ENFHEX Best Practice Manual, the development of the ENFHEX e-learning platform, and the design and implementation of the Multidisciplinary Exercise, which has been running since 2018.

Zuzanna Bura

Zuzanna Bura has been working at the Handwriting and Document Examination Laboratory since 2021 and has been a forensic expert at the Institute of Forensic Research (IES) since 2025. She holds a degree in Biophysics from the Faculty of Physics, Astronomy and Applied Computer Science at Jagiellonian University. She is currently pursuing a doctorate in the field of legal sciences at the Faculty of Law and Administration of the University of Silesia. She actively participates in numerous scientific research projects, including being a project leader. She regularly takes part in national and international forensic science conferences, including those organized by the European Academy of Forensic Science (EAFS), as well as working group meetings. She is also involved in teaching at the University of Silesia in Katowice and collaborates with AGH University of Science and Technology in Kraków in this area. In addition, she is actively engaged in the popularization of forensic science.

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Biographies of presenters

Sebastiana Cardinale

Sebastiana Cardinale is a Forensic Police Officer, serving with the Italian National Police since 1988 and with the Forensic Police since 1991. She is a specialist in crime scene investigation, forensic handwriting examination and document fraud examination, with experience in facial composite identification. From 1991 to 2002 she served at the Regional Forensic Police Office in Palermo; since 2002 she has served at the Regional Forensic Police Office for Lombardy in Milan. Her specialist training includes Crime Scene Investigation (1991), Forensic Handwriting Examination (1998 and 2015), a Diploma in Judicial Graphology (2004), a Degree in Investigation Sciences from the University of L'Aquila (2007), Level 2 and Level 3 specialist training in Document Fraud Examination (2017 and 2019), and an Advanced Training Course in Security Sciences at Sapienza University of Rome (2017/2018). She is also an instructor in document fraud examination for Italian National Police and Border Police personnel. In 2022, she represented the Italian Forensic Police at the 14th ENFHEX Conference in Zagreb.

Nellie Cheng

Nellie Cheng is a Consultant Forensic Scientist and Team Lead of the Questioned Document Discipline at the Health Sciences Authority in Singapore. With over two decades of experience in forensic document examination and toxicology, she has accumulated broad expertise in the field, contributing to it both locally and internationally. Nellie is an active contributor to the global forensic science community, serving on the Forensic Document Examination Subcommittee, the Organization of Scientific Area Committees for Forensic Science, National Institute of Standards and Technology (FDE SC / OSAC / NIST) and on the Questioned Document Workgroup and Board at the Asian Forensic Sciences Network (AFSN). She is affiliated with several leading professional bodies, including the American Academy of Forensic Sciences and the European Network of Forensic Science Institutes. In the area of quality assurance, she serves as an ANAB Forensic ISO/IEC 17025:2017 Technical Assessor and a Technical Expert for the Hong Kong Laboratory Accreditation Scheme (HOKLAS). A prolific presenter at international conferences, she has also published research in international peer-reviewed journals and lectures at Nanyang Technological University in Singapore.

Nicole Crown

Nicole Crown has obtained a MSc in Forensic Sciences from the University of Lausanne in 2001, Switzerland. She has 21 years of experience in the field of forensic handwriting and document examination, two of those in the Questioned Document Unit, Western Cape, South Africa. She has been working since 2010 as a senior handwriting examiner at the Zurich Forensic Science Institute for civil and penal cases. Nicole has been a member of the Steering Committee of the European Network of Forensic Handwriting Experts (ENFHEX) since 2015 in various roles, with current responsibility in the areas of education and training.

João Cunha

João Cunha is a Forensic Document Expert at the Forensic Science Laboratory of the Portuguese Polícia Judiciária, bringing over a decade of law enforcement experience to the field of document fraud. With a degree in Psychology, he began his professional career serving for seven years as a Police Officer in the Polícia de Segurança Pública. This diverse background provides him with a unique, multifaceted understanding of criminal behavior and investigative dynamics. For the past three years, he has specialized in forensic document examination, dedicating his expertise to the analysis of questioned documents, with a primary focus on fraudulent identification and travel documents. His daily work involves uncovering counterfeiting techniques across various printing technologies. A strong advocate for multidisciplinary methodologies, today, he will present with his colleague, Luís Figueira, a case study titled "Unveiling the Forger's Workflow: A Multidisciplinary Casework Approach", demonstrating how the synergy between physical evidence analysis -such as ribbon data extraction – and digital forensics is vital to fully decoding modern forgery operations.

Tomasz Dziedzic

Dr. Tomasz Dziedzic (ORCID: 0000-0002-1942-6007) is a senior forensic handwriting and document examiner at the Institute of Forensic Research in Kraków, Poland, with 25 years of professional experience in the field. Since 2019, he has served as Chair of the European Network of Forensic Handwriting Experts (ENFHEX). Tomasz is the author and co-author of numerous scientific publications, conference presentations, training courses, and quality documents, and brings extensive experience as a researcher, educator, and assessor within the discipline.

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Biographies of presenters

For the past decade, his research has focused on digitally captured signatures (DCS), and he has contributed significantly to the development of methodology for the examination of this emerging category of handwriting evidence. He currently identifies the responsible automation of selected analytical processes, including the use of artificial intelligence, as one of the key challenges facing forensic handwriting examination — one that should support and enhance the work of human experts rather than replace them.

Rolf Fauser

Rolf Fauser is a police officer who studied print and media at the University of Stuttgart. He has worked as a forensic document examiner since 1991. From 2013 to 2018, he was Deputy Head of the Forensic Investigation Department of the State Police Directorate in Tübingen. In 2018, he became head of the document section at the State Criminal Office Baden-Württemberg, Department of Forensic Science (LKA Stuttgart). Since 2005, Rolf has specialised in researching the print characteristics of inkjet and laser machines for the purposes of classification and identification. From 2016, he led an EU project, developing seven SQL databases (inkjet, toner, pens and printing techniques). Since April 2020, he has also been the initiator and head of the "Artificial Intelligence in Document Examination" project, which involves creating a new database and AI software to depict the knowledge of document experts. The budget was €1.5 million. Since 2012, Rolf has been a member of the Steering Committee, and from 2022 to 2024 he was chairman of EDEWG, retiring in January 2025. Following his retirement Rolf will be a contract teacher at the University of Police and from August 2025, a research assistant at the University of Media's Institute for Applied Artificial Intelligence in Stuttgart.

Sarah Ferry

Originally from the United States, Sarah has lived and worked in Denmark for the past 15 years. She holds a Master's degree in Conservation of Fine Art, specialising in paper, from the UK. After working in museums and galleries, Sarah discovered a passion for forensic document examination and has spent the past eight years as a document examiner at the Danish National ID Centre. Alongside casework, she has a particular interest in developing effective and engaging approaches to training staff and strengthening professional practice. As the laboratory's Quality Manager, she is passionate about making quality assurance practical, accessible, and relevant to everyday examination work. Sarah is especially interested in streamlining processes and turning ISO requirements from something that can feel abstract or burdensome into tools that examiners can understand, use, and benefit from in their daily work.

Luís Figueira

Luís Figueira is a Lisbon-based forensic document expert who works for Portuguese Criminal Police "Polícia Judiciária". Born in Abrantes in 1999, he discovered early on a passion for forensic sciences, which led him to pursue a bachelor's degree in Forensic and Criminal Sciences at the Egas Moniz School of Health & Science in Almada and also an internship in former portuguese border police "SEF". Since 2023 Luís has been working in the Forensic Science Laboratory located in Polícia Judiciária headquarters as a forensic document expert. He also works close to European Commission along other Member States in Article 6 Committee and Travel Document Committee and with FRONTEX helping border guards through quick check cards creation and other travel document security matters. Besides his professional life, he enjoys running, photography and geopolitics. Daily what drives Luís is the urge to understand how counterfeiters work and their strategies to reproduce document security features.

Barbora Geistová Čakovská

Barbora Geistová Čakovská received her master's degree in Philosophy and French language in Slovakia, then studied in France, where she obtained a DEA diploma in Linguistics, Logic, and Informatics. After receiving her PhD. diploma in Analytic philosophy at the Slovak Academy of Sciences, she stayed there to work as a researcher. Since 2012, she is based at the Institute of Forensic Science, Slovakia, and works as senior forensic handwriting expert. She has introduced the examination of digitally captured signatures in Slovakia and is happy to participate in several ENFHEX projects.

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Biographies of presenters

Jörg Greis

Jörg Greis completed his university degree in physics at the University of Heidelberg in Germany in 2009. After some years at a software development company, he joined the department of “Questioned Documents, ID Systems” in the Forensic Science Institute of the German Federal Criminal Police Office (Bundeskriminalamt) in 2012 as a forensic document examiner. Having conducted the forensic analysis of digital document components like electronic passport chips for years, his work recently focusses on digital identities and their impact on the future of physical documents. In this role, he is a consultant to the German Federal Ministry of the Interior, advising and reviewing the progress of respective EU regulations. Today he will talk about digital identities and their binding to physical documents as well as the challenges in case there is no physical document as a fallback alternative anymore.

Marc Gaudreau

Marc Gaudreau graduated with a B.Sc. in Chemistry from University of Ottawa. He has worked as a forensic handwriting and document examiner, and a forensic science manager for over 40 years with various departments of the Canadian federal government including the Royal Canadian Mounted Police, the Canadian Security Intelligence Service, the Canada Revenue Agency, and the Canada Border Services Agency. In these last three departments he designed and set up the forensic laboratories, as well as managed the program and teams. In 2008 he moved to the private sector, as the Director of Research and Development at the Canadian Banknote Company (CBN), a security printing manufacturer and integrator. In this role he directed the R&D of a team of nine research scientists, developing security features and conducting forensic work for international clients of the company. He has led national R&D projects in microfluidics and advised on nanomaterials research and applications to security documents and holds multiple patents for his work with CBN. At CBN Marc also designed and developed multiple R&D, quality assurance and forensic laboratories. Throughout his career he has also worked as a private forensic handwriting and document consultant. In 2007 he was awarded the Canadian Public Service Award of Excellence in Innovation for developing and implementing analytical chemistry methods for document dating.

Maud Grijpink

Maud Grijpink is a recent graduate in forensic sciences of the Amsterdam University of Applied Sciences. Maud conducted her final project under the guidance of Elisa and Samiah to determine what, if any challenges are posed to forensic handwriting experts with advances in artificially synthesized handwriting. Maud presented this original research at the IAFS 2026 in Bulgaria, and the ASQDE 2026 Virtual Conference. Presently, Maud continues her contract with the Maastricht Forensic Institute as she decides her next professional path.

Marta Guinote

Marta Guinote holds a Bachelor's degree in Biochemistry and a Master's degree in Forensic Medicine and Forensic Sciences. Her academic background has provided her with experience in analytical chemistry, laboratory research and the application of chemical analysis to forensic science. During her academic training, Marta completed internships at the Plant Ecophysiology and Metabolism Lab at ITQB-NOVA and the Microbial Stress Lab at FCT-NOVA, gaining experience in different areas of laboratory research. As part of her Master's degree, she carried out her dissertation at the Laboratório de Polícia Científica (Forensic Science Laboratory), focusing on the chemical analysis of writing inks. Her research, entitled “Analysis of Writing Inks LC-HRMS: Advanced Chemical Characterization for Applications in Forensic Science”. The method presented in this conference was developed as part of this Master's dissertation. Through this research, Marta gained experience in analytical method development, mass spectrometry and the application of instrumental chemical analysis to forensic investigations. She is currently looking to pursue doctoral research to further develop her expertise in analytical chemistry and forensic science.

Patrick Haab

As Group leader of the Documents Section at the Zurich Forensic Science Institute, Patrick Haab is responsible for the technical and organisational management of the document examination department. In 2006, he graduated from the Zurich City Police Academy. After several years in the police force, he moved to the Schwyz Cantonal Police's forensic unit in 2010, where he worked as a forensic scientist. At the same time, he was responsible for document examination on a part-time basis and deepened his specialist knowledge in this field.

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Biographies of presenters

He has been working at the Zurich Forensic Institute since August 2015. There, he initially worked as a generalist in crime scene forensics and, from January 2019, headed a task force. In January 2025, he became group leader of the Documents Unit and is responsible for the further development of forensic document examination; he runs one of two identity document verification centres in the Canton of Zurich and serves on various national committees for document security. Among other things, this includes quality assurance for national identity documents (passports and identity cards).

Marco van der Hammen

Marco van der Hammen specializes in the forensic examination of questioned documents, handwriting and signatures with more than thirty-five (35) years' experience in the South African Police Service (SAPS). During his tenure in the SAPS, he successfully established and commanded two decentralized questioned document examination laboratories, viz. Cape Town (1997-2011) and Durban (2012-2026). Working in conjunction with some prominent international colleagues, Marco was instrumental in introducing scientific method and principles as applied to the practice of Forensic Handwriting Examination in the Forensic Science Laboratory, South African Police Service (encompassing, inter alia, hypothesis generation and testing, falsifiability and replication). From this, Marco introduced a comprehensive scientifically based report for forensic handwriting and signature examination in terms of the South African Criminal Procedure Act (51 of 1977) which has been found to be acceptable and credible in courts of law. Marco retired from the SA Police Service on 28 February 2026 and subsequently established a private practice with Col (ret'd) M.T. du Toit, also a fully qualified and experienced forensic document and handwriting examiner during March 2026. The practice, Forensic Document & Handwriting Institute (FDHI) resorts under an umbrella South African company known as IT Empowerment Technologies (ITET) focusing primarily on civil matters, training and research and development.

Elisa van den Heuvel

C. Elisa van den Heuvel, PhD, is a forensic handwriting expert, with a background in cognitive psychology and fine motor control. She delivers training, workshops, and lectures internationally, and her work connects forensic handwriting examination with artificial intelligence, data science, neuropsychology, biomechanics, and wildlife forensics. Elisa also works closely with the Maastricht Forensic Institute and the Amsterdam University of Applied Sciences. A key focus of her research is the integration of automated technologies into forensic handwriting analysis, helping advance the field while supporting rigorous forensic practice. Elisa received her training at the Netherlands Forensic Institute, and works as a private expert in civil case work, and for the Maastricht Forensic Institute-Eurofins in criminal case work.

Melanie Holt

Melanie Holt is a forensic document examiner with over 18 years' experience. The majority of her training was undertaken with the NSW Police Force. In 2018, she opened her own private practice, Documents in Dispute. She is now based in Queensland, Australia. Melanie's professional memberships include: the Australasian Society of Forensic Document Examiners Inc (where she is currently serving as Vice President), the American Society of Questioned Document Examiners (as a corresponding member), and the Australian and New Zealand Forensic Science Society. Melanie was the first and, to date, the only international examiner (i.e., non-American or Canadian) to be certified by the American Board of Forensic Document Examiners.

Samiah Ibrahim

Samiah Ibrahim is the principal forensic document examiner at ForensInc in Ottawa, Canada, after working for 32 years as a forensic expert and manager with the Canadian federal government. Her present work includes handwriting and signature comparison, document authentication, and document dating, and forensic document examination management consulting and training. Samiah is a member and Past President of the American Society of Questioned Document Examiners, the American Academy of Forensic Sciences (Serving on the Board of Directors), the Canadian Society of Forensic Sciences, the Chartered Society of Forensic Sciences (UK), and the African Forensic Sciences Academy. She serves on the INTERPOL International Forensic Sciences Managers' Symposium Organising Committee, has supported United Nations forensic capacity development projects, and has on occasion provided forensic assistance to the International Criminal Court.

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Biographies of presenters

Sincere Ip

Sincere Ip is a forensic document examiner with the Canada Border Services Agency in Ottawa, Canada. She holds a Master of Forensic Science from the University of Strathclyde. Ms. Ip completed her training under the guidance of senior forensic document examiners at the CBSA in 2023. She is the current Section Chair of the Document Section of the Canadian Society of Forensic Science.

Barbara Joyce

Barbara holds a degree in psychology. At the university of Mannheim she got in contact with forensic handwriting examination. She took the course at ISU (Institut für Schriftuntersuchung / Institute for Handwriting Examination) and graduated successfully. During this time, she also worked at the institute and with freelance experts. For five years she is employee of Bundeskriminalamt (Federal Criminal Police Office) in Section KT33 Handwriting. She works as handwriting expert, is deputy of the head of the section and is responsible for "FISH" (Forensisches Informationssystem Handschriften / Forensic Information System on Handwriting).

Nikolaos Kalantzis

Dr Nikolaos (Niko) Kalantzis has a BSc in Physics, a PgD in Forensic Science, an MSc in Questioned Documents, a PhD in Forensic Science, he holds a diploma in Questioned Documents (FSSocDip) from the Chartered Society of Forensic Science of which he is a Professional Member, and he is a corresponding member with the American Society of Questioned Document Examiners (ASQDE). He works both for the courts of Athens and Piraeus and handles private cases as an examiner and manager of Chartoularios Institute, an associate member of the European Network of Forensic Handwriting Experts (ENFHEX) – of which he is a member of the Steering Committee since 2019 - and is registered in the list of experts of the International Criminal Court at the Hague and the Netherlands Register Gerechtelijk Deskundigen (NRGD). As a published author, Niko lectures at the University of Staffordshire, the European Forensic Institute (Malta) and Keele Greece University, participating in experiments and research projects as well as delivering lectures at undergraduate and postgraduate levels, having a keen interest in Digitally Captured Signatures (Biometric Signatures) and AI uses for Handwriting and Document examination.

Łukasz Kocielnik

Sc. Lt. Łukasz Kocielnik (ORCID: 0000-0002-9738-7074) is a forensic handwriting examiner at the Central Forensic Laboratory of the Police in Poland. He has been an officer in the Polish police since 2012, and has been in the lab since 2017. Since 2021, he has been authorized to issue forensic opinions in the field of handwriting analysis. From 2024 to 2026, he was the deputy head of the Document Examination and IT Forensic Department in the laboratory. He is the author of scientific publications on handwriting research, especially digitally captured signatures. As an expert, he conducts workshops and training in this field. In the years 2020-2024, he took part in a scientific project called: Intelligent System for Identification of Forgery of Biometric Handwriting Features, operating under the code name Manuscript. His main interest is research on digitally captured signatures. He is a co-author of the methodology for analyzing electronic biometric signatures in the Central Forensic Laboratory of the Police.

Kevin Kulbacki

Dr. Kevin Kulbacki is a Forensic Document Examiner and the CEO of KDX Forensic Consulting, LLC in Chicago, Illinois. He is a Diplomate of the American Board of Forensic Document Examiners and Chair of the ASB Forensic Document Examination Consensus Body, which develops national consensus standards for the discipline within the United States. He also teaches forensic document examination at Loyola University Chicago. His research interests center on forensic ethics, including the prevalence and severity of ethical issues in forensic science, the organizational climates in which practitioners work, and barriers to detecting and reporting misconduct, as well as the forensic reliability of electronic signatures for the determination of authorship.

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Biographies of presenters

Marcin Kunicki

Dr Marcin Kunicki has spent his entire professional career at the Jan Sehn Institute of Forensic Research in Krakow. Since 2022, he has served as Head of the Handwriting and Questioned Document Examination Section at the IFR. He collaborates with various organisations, including the Polish Centre for Accreditation, the Slovenian Accreditation and several Polish universities, where he lectures. He is the author of numerous scientific papers and conference presentations on document and handwriting examination. Dr. Kunicki has the honor of being a long-standing member of the SC EDEWG.

Sherni Koh

Sherni Koh is a Senior Forensic Scientist with the Health Sciences Authority, Singapore, with 15 years of multidisciplinary forensic experience across a wide range of evidence types, including trace evidence, textile damage analysis, bloodstain pattern interpretation and crime scene reconstruction. This broad forensic background brings a multidisciplinary perspective to her developing work in forensic handwriting and document examination. She has contributed to major investigations locally and internationally and has presented her work at international forensic science conferences, including the European Network of Forensic Science Institutes, the American Academy of Forensic Sciences, the International Association of Bloodstain Pattern Analysts and the Asian Forensic Sciences Network. She also serves as a peer reviewer for Forensic Science International. Sherni is currently undertaking formal training in forensic handwriting examination and holds the GIAC Certified Forensic Analyst (GCFA) certification in digital forensic analysis and investigation. This combination provides her with an understanding of both traditional forensic document examination and digital approaches applicable to electronic documents, including the use of metadata and file artefacts to complement the examination of potentially manipulated documents

Ahmet Küner

Ahmet Küner is a Commissioner/Inspector serving as the Supervisor of the Document Forgery Examination Bureau at the Forensic Document Examination Branch of the Istanbul Regional Forensic Police Laboratory, under the Department of Forensic Police Laboratories. He specializes in forensic document examination, with particular expertise in document fraud, machine writing, handwriting and signature examination. Mr. Küner received his Bachelor's degree in Political Science and Public Administration from Selçuk University (2013–2018). He subsequently completed the Turkish National Police Academy (2019–2021) and graduated -as deputy inspector- in 2021. He is currently pursuing a Master's degree in Social Sciences at the Institute of Forensic Medicine and Forensic Sciences, Istanbul University-Cerrahpaşa, where he is at the thesis stage. His professional work focuses on forensic document examination. In his presentation, "The Importance of Forensic Document Examination in Forensic Intelligence Production: A Case Study on Profiling of Counterfeit Republic of Türkiye Residence Permit Documents," Mr. Küner will discuss the role of forensic document examination in producing forensic intelligence, presenting a case study on the profiling and examination of counterfeit Republic of Türkiye residence permit documents.

Gonzalo Lirón Álvarez

Gonzalo Lirón Álvarez holds a degree in Psychology from the Complutense University of Madrid, and his involvement in the forensic field began fifteen years ago when as a Civil Guard, he joined the Questioned Documents Department, which is part of the Criminalistics Service. (Spain). Over the years, he has received both internal and external training to work as a forensic expert specializing in security documents, banknotes, and handwriting and signatures—covering also Arabic and Chinese languages. Since then, his work has focused on preparing forensic reports, providing consultations and assistance to police units and judicial authorities, and training new specialists; more recently, Gonzalo has also been involved in supervising and validating reports from our various national laboratories and attending international meetings.

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Biographies of presenters

Martina Lunakova

Martina Lunakova graduated from the University of Pardubice (Czech Republic) with the master's degree in chemistry and graphic arts (1993). Since 1993 she has been working as a document and currency examiner as a police expert at the Institute of Criminalistics in Prague (ISP). She is also appointed by the Minister of Justice of the Czech Republic as an expert witness in the field of document and currency examination. She involves in research projects of ICP concerning introduction of new methods to document examination. In research she especially aims to sequence determination of intersecting or not intersecting entries and to pen ink discrimination. She is a chairperson of the Scientific Council of the Institute of Criminalistics, member of Advising body of the Ministry of Justice and member of Steering Committee of the European Document Examiner Working Group.

Olena Maliei

Olena Maliei is the Head of the Department of Document Materials Examination at the Kyiv Scientific Research Institute of Forensic Expertise of the Ministry of Justice of Ukraine. She holds a Master's degree in Chemistry and has extensive professional experience in the forensic examination of questioned documents and document materials. Her professional activities focus particularly on the examination of writing materials, including ballpoint pen inks, stamps and documents with signs of artificial ageing. She has been involved in ink dating examinations since 2011 and has extensive practical experience in the examination and interpretation of forensic evidence related to document materials. Olena is actively involved in the development and practical application of forensic document examination methods. Her professional interests include the examination of writing materials, the time of application of stamp impressions, ink dating, the identification and comparison of document materials, and the assessment of alterations and signs of artificial ageing in documents. She regularly participates in professional and scientific conferences, expert meetings, and other activities related to questioned document examination and the development of forensic methodologies.

Raymond Marquis

Raymond Marquis obtained his PhD in forensic science from the School of Criminal Justice at the University of Lausanne, Switzerland, with a doctoral thesis on handwriting examination. His research contributed to the validation of fundamental principles of forensic handwriting examination through the analysis of loop shapes in handwritten characters. Since 2004, he has been a research manager at the School of Criminal Justice, where he conducts handwriting examinations for public authorities, civil and private clients. He is also actively involved in research and has published several peer-reviewed scientific articles in the field. His professional and research interests focus on the logical approach to the evaluation of evidence and its practical application in forensic casework.

Manuel Meneghetti

Captain Manuel Meneghetti is an Officer of the Italian Carabinieri and a forensic scientist whose path at the Forensic Science Department (RIS) in Parma has spanned highly specialised areas of forensic science. He has recently joined the newly established Microanalysis Section, created in response to the growing relevance of trace evidence examinations. In this role, he combines his forensic experience and academic background in Materials Science for the chemical and physical characterisation and comparison of trace evidence. Previously, he served in the Chemistry Section, conducting forensic analyses of materials including inks, paints, fibres, hair and glass. From 2022 to 2024, he worked in the Graphics and AudioVideo Forensics Section, with particular involvement in forensic document examination, video and audio analysis, while developing analytical methods and software tools incorporating machine learning and artificial intelligence. He graduated with honours in Materials Science and Chemistry and ranked first in his Technical Officers training course at the Carabinieri Officers School. Before joining the Carabinieri, he served in the Italian Army and worked as a university researcher, developing sustainable photovoltaic technologies resulting in national and international patents. Author of peer-reviewed publications in forensic document examination and facial comparison, he represents the Italian Carabinieri within EDEWG.

Linton Mohammed

Linton Mohammed had been a Forensic Document Examiner for almost 40 years. His research interests are in signature examinations. He is a Past-President of ASQDE, and is the current Treasurer of the American Academy of Forensic Sciences.

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Biographies of presenters

Jonathan Morris

Jonathan has over 35 years' experience in Forensic Document Examination and has been involved in the training of new staff, the introduction of Quality Systems and Evaluative Reporting and various research and development topics (including tutoring three MSc students in Digitally Captured Signatures and Handwriting). He was part of the National Institute of Standards and Technology sponsored Human Factors in Forensic Handwriting (HFHE) Project. He is actively involved in developing training programmes within Europe and wider afield with the Organisation of Scientific Area Committees in the USA. Jonathan was the first Chairman of the European Documents Expert Working Group (from 1998 to 2001), was on the Steering Committee of the European Network of Forensic Handwriting Experts (ENFHEX) from 1998 to 2002, Chairman of ENFHEX from 2013 to 2019 and is the current deputy Chair of ENFHEX. He project managed the first version of the ENFHEX Best Practice Manual, and has been involved in each of the subsequent editions. Having recently retired into a part-time role Jonathan has launched Morris Forensic Consultants Ltd, a business focused on casework, quality and training within Forensic Science. In 2025 Jonathan was created an Honorary Member of ENFHEX.

Nicola Musgrave

Nicola Musgrave is a Senior Forensic Scientist with more than 27 years of experience in forensic science. She holds a Bachelor of Science degree in Nutritional Biochemistry from the University of Nottingham and a Master of Science degree in Forensic Science from King's College London. Throughout her career, she has worked for some of the UK's leading forensic providers, including the Forensic Science Service (FSS), LGC Forensics, and now Eurofins Forensic Services, all based in London. Specialising in Questioned Documents, Nicola conducts forensic examinations for police forces across the UK, as well as agencies including the National Crime Agency, HM Revenue & Customs, the Department for Work and Pensions, and the Food Standards Agency. Her expertise spans handwriting and signature comparison, ink differentiation, printer examinations, and the recovery and interpretation of indented impressions. She has provided expert evidence in court on numerous occasions. In addition to her casework, Nicola has pioneered research into the physical fit of machine-cut edges of plain A4 paper, publishing her findings in the *Journal of Forensic Sciences*. Since 2022, she has also served on the Steering Committee of the European Document Experts Working Group (EDEWG).

Jean-Alexandre Patteet

Jean-Alexandre Patteet holds a Bachelor's, Master's, and PhD in Forensic Science. He completed his doctoral research at the School of Criminal Justice of the University of Lausanne, where he specialized in the forensic examination of toolmarks. His PhD focused on the development of comparison and evaluation algorithms for cutting plier marks acquired using 3D microscopy, contributing to the advancement of objective and quantitative methods in forensic science. Since joining SICPA in Switzerland, Jean-Alexandre has worked as a Forensic Specialist within the Forensic Competence Center. His activities include the forensic analysis and reporting of a wide range of security documents and products, including banknotes, identity documents, tax stamps, and brand protection labels. He also delivers training to customers and colleagues on the authentication of security features and forensic examination techniques. In addition to his analytical work, Jean-Alexandre acts as a bridge between the evolving landscape of counterfeiting and SICPA's research and development teams, helping translate emerging threats into innovative security solutions and authentication technologies.

Ana Rojo

Ana Rojo has beenw with the Civil Guard since 2004 and is currently a specialist in the handwriting and Questioned Documents Department of the Criminalistic Service in Civil Guard, where she has been working for 15 years. Her main academic background consists of Degree in Psychology from the Complutense University of Madrid and Expert in Psychographology, Forensic Handwriting Analysis and Document Examination form UNED. Her training as an expert is ongoing, thanks to annual courses conducted by the Criminalistic Service, which feature leading experts in fields related to hery specialty.

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Biographies of presenters

Claudio Reis

Cláudio Reis is a Forensic Handwriting Expert at the Forensic Science Laboratory of the Judiciary Police, Portugal. His work focuses on forensic handwriting examination, including the reporting and technical validation of forensic examinations. Alongside his casework, he contributes to the laboratory's quality management system under ISO/IEC 17025, participates in technical audits, and oversees forensic equipment. He is also a trainer in forensic handwriting examination, providing training to forensic specialists, investigators and law-enforcement professionals, particularly in the collection of handwriting reference samples. His academic background is in Psychology, with a Master's degree in Criminal Psychology. Before specialising in forensic handwriting examination, he spent ten years working as a Military Psychologist and as an Analyst at the Portuguese Ministry of Defence, with experience in psychological assessment, analysis and decision support. Cláudio is interested in solving complex forensic problems and exploring ways to make established practices more robust and efficient, while maintaining scientific integrity and forensic independence. He is also interested in strengthening the connection between forensic science and criminal investigation.

Giuliana Schwendener

Giuliana Schwendener holds a degree in Forensic Science from the University of Lausanne. While working at the Crime Scene Investigation Unit in Aargau, Switzerland, she trained in document examination and gained her first hands-on experience in the field. Since 2019 she has worked as a third line document examiner at the Norwegian ID Centre. In addition to casework, she is actively involved in various international networks and has a particular interest in how to make electronic Machine Readable Travel Documents (eMRTDs) more understandable for document examiners at different levels.

Tobin Tanaka

Tobin Tanaka is a forensic document examiner in Vancouver Canada. He has over 30 years of experience in the field. Currently, he runs his own private practice, Questioned Document Forensic Laboratory Inc. From 1993-2023, Tobin was a Forensic document examiner (FDE) with the Government of Canada. He is certified by the American Board of Forensic Document Examiners (ABFDE) and is a member of the ASQDE, the Document Section of the Canadian Society of Forensic Science and the Chartered Society of Forensic Sciences. He is also a Fellow of the Questioned Document Section American Academy of Forensic Sciences (AAFS) and a Corresponding member of the Australasian Society of Forensic Document Examiners Inc (ASFDE Inc).

Sofia Timóteo

Sofia Timóteo holds a Bachelor's degree in Forensic and Criminal Sciences from Instituto Universitário Egas Moniz. She has been working as a forensic expert in the field of counterfeit banknotes and coins for three years, while also being responsible for document management within the quality management system. Her professional training includes specialised courses provided by the European Central Bank, Banco de España and Banco de Portugal. Since 2025, she has been a member of the CEG and collaborates with the European Central Bank and Banco de Portugal in the field of currency.

Marthinus du Toit

Marthinus T. du Toit specializes in the forensic examination of questioned documents, handwriting and signatures with more than twenty-nine (29) years' experience in this field in the South African Police Service. Besides tremendous contributions in document and handwriting related casework, Marthinus also served as the National Development Facilitation (Training) Commander for the Questioned Document Section, Forensic Science Laboratory of the South African Police Service from 2012 to 2025. His contributions to the Section included oversight and participation in all aspects of questioned document casework; case review and quality assurance; mentorship, coaching, and skills development of examiners within the discipline and the establishment of national training standards and professional development within the Questioned Document Section.

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

Biographies of presenters

Andreia Vieira

Andreia has a BSc in Clinical Psychology and a MSc in Cognitive Science with postgraduate qualifications in Human Resources Management, Criminal Sciences, and Forensic Psychiatry, Psychology & Law. She has been a Forensic Handwriting Expert since 2000 (receiving training at the BKA Wiesbaden and LKA Munich, Germany, in 2001) and Technical Lead in this area since 2018, specialising in forensic handwriting examination, method development, validation, quality supervision and training. Since 2019 she has been the head of the Forensic Expertise Division, Forensic Science Laboratory (LPC), Polícia Judiciária, Portugal. Andreia is a Member of the ENFHEX Steering Committee, ENFSI, and acted as Treasurer since 2017. She was the Team Leader of the ENFHEX BPM Upgrade project for the harmonisation of forensic handwriting procedures in Europe, issued in 2022. Her role at the LPC has her as the National Representative in EMPACT/DFIG and FRONTEX/HLRT and FRONTEX/EXP-DOC, since 2023. She is a lecturer and supervisor in postgraduate, Master's and PhD programmes in forensic sciences and been a speaker, moderator and organiser at national and international conferences, seminars and workshops. Andreia has authored and been co-author of several scientific articles and conference posters in the field of forensic handwriting examination.

Simon Wyss

Simon Wyss is the Group Leader of the Material Analysis Group at the Zurich Forensic Science Institute. He holds an MSc in Chemistry for the Life Sciences from the Zurich University of Applied Sciences (ZHAW) and a Certificate of Advanced Studies (CAS) in Authenticity and Provenance in Fine Art from the Bern Academy of the Arts. Since 2024, he has served as Chairperson of the European Document Experts Working Group (EDEWG). His research interests lie at the intersection of forensic science, analytical chemistry, and cultural heritage. His work encompasses glass analysis, paint analysis, art authentication, gunshot residue (GSR) analysis, and document dating. Through an interdisciplinary approach, he applies analytical and forensic methodologies to the investigation of materials, objects, and their provenance.

Ayşegül Şen Yılmaz

Aysegul Sen Yilmaz, PhD, is a researcher at the Institute of Forensic Medicine and Forensic Sciences, Istanbul University-Cerrahpasa, Türkiye. She holds a BSc in Physics, an MSc in Biomedical Engineering, and a PhD in Forensic Sciences. Her research focuses on the application of physical and engineering principles, quantitative methods, and emerging technologies to forensic sciences. Within forensic document examination, her particular interests include handwriting and signature examination, digitally captured signatures and handwriting, and the development and application of objective measurement approaches to questioned document analysis. Her research also explores the use of instrumental and technology-based methods for the objective characterization, measurement, and interpretation of forensic evidence. More broadly, her work aims to integrate physics- and engineering-based approaches into forensic research and practice, with an emphasis on objective and quantitative assessment. She has presented her research at national and international scientific meetings and has authored scientific publications in forensic document examination and other areas of forensic science.

Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

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Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

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Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

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Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

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Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

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Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

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Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

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Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

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Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

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Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

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Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

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Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

General Information

EMERGENCY CONTACT NUMBER

In case of emergency Andreia Vieira, Conference Host, has provided the following contact telephone number:

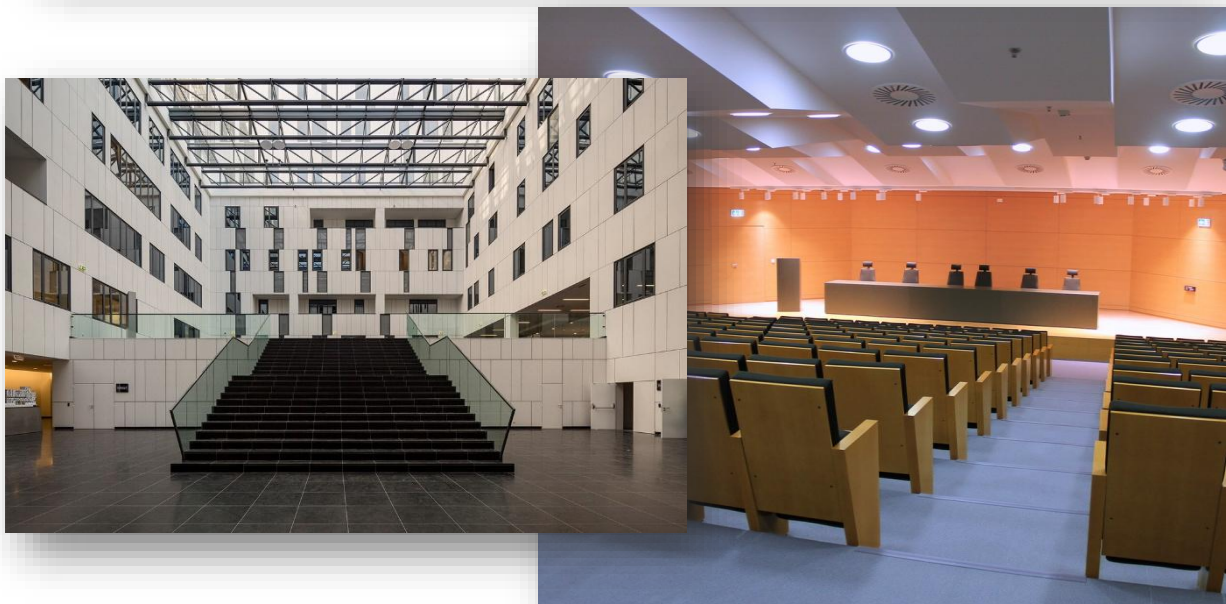
Andreia Vieira (+351) 966 580 261

CONFERENCE VENUE

The Conference will be held in Lisbon, Portugal, hosted by the Forensic Science Laboratory of the Judiciary Police, a leading national facility dedicated to forensic analysis. The venue is centrally located and easily accessible by public transport, providing convenient access to the city's main attractions.

The main meeting room has a seating capacity of 200 and is connected to a spacious reception area, which will be used for coffee breaks and access to the sponsor displays, facilitating interaction and networking among participants. A secondary auditorium, with a seating capacity of 80, is directly accessible from the main area. All rooms are equipped with appropriate audiovisual facilities to support presentations and technical sessions.

Address: Edifício Sede da Polícia Judiciária, Rua Gomes Freire, 1169-007 Lisboa



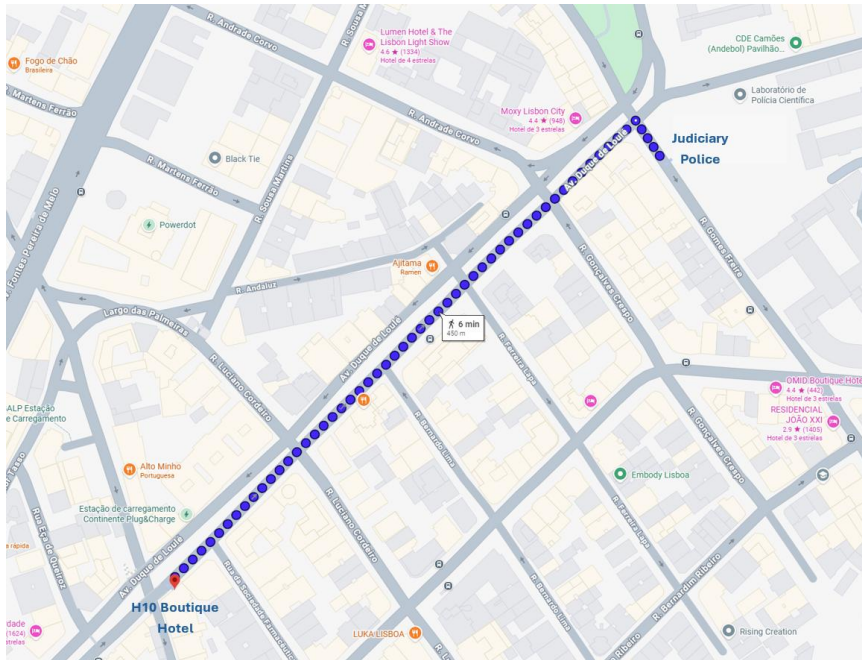
Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

General Information

SOCIAL PROGRAMME

Monday, 28th September 2026 – Welcome Reception

The welcome reception will be held at the H10 Boutique Hotel from 18:30 onwards, providing a fitting setting to mark the beginning of the event. Please note that registration should be completed prior to the welcome reception at the Judiciary Police Headquarters between 17:00 and 18:30.



https://www.google.com/maps/place/H10+Duque+de+Loul%C3%A9/@38.7280506,-9.1456432,18.25z/data=!4m9!3m8!1s0xd1933764793563d0:0x92435a94cb9b24f2!5m2!4m1!1i2!8m2!3d38.726463!4d-9.147064!16s%2Fg%2F11bymt0hpm?authuser=0&entry=ttu&_ep=EgoyMDI2MDgwOS4wIXMDS0ASAFQAw%3D%3D



Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

General Information

Tuesday, 29th September 2026 – Cruise including Conference dinner on board

The conference dinner will take place aboard the *Ópera*, a charming vessel cruising the Tagus River (*Rio Tejo*). As it glides past Lisbon's iconic waterfront, participants will enjoy an unforgettable evening of fine dining, relaxed conversation, and stunning panoramic views of the city, from the historic riverside to the modern skyline. This unique setting offers a perfect blend of elegance, atmosphere, and the magic of Lisbon by night.

Duration: 4 hrs.

Passenger Boarding: **18h45**

Buses for transfer to Doca de Alcântara will leave Judiciary Police Headquarters will depart at 18hr00.

Address:

Doca de Alcântara,
Lado norte,
Rocha do Conde de Óbidos,
1350-352 Lisboa

Google Maps [Link](#)

Departure: 19h20

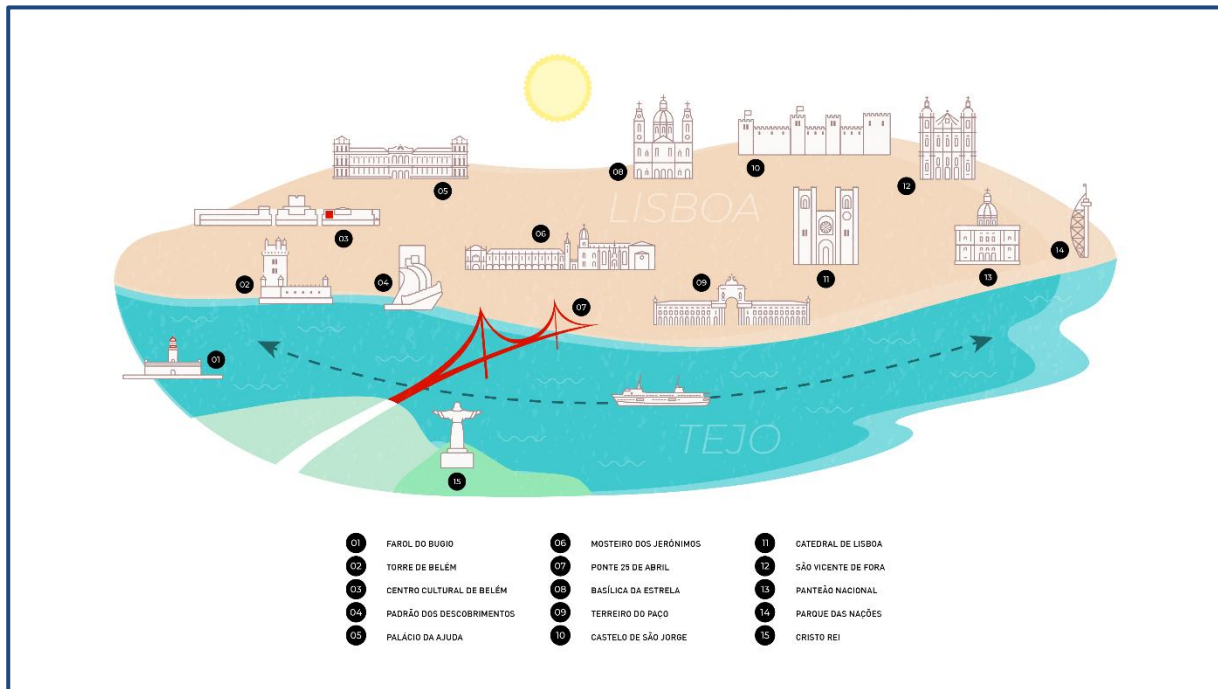
Arrival: 23h00



Joint Meeting of EDEWG and ENFHEx in Lisbon, 2026

General Information

Points of interest during the Cruise



Wednesday, 30th September 2026(attached) – Suggestions for the late afternoon

After the conference sessions conclude, around 17h00, participants can enjoy a leisurely afternoon on foot exploring Lisbon's elegant surroundings near Picoas. Highlights within easy walking distance include Eduardo VII Park, the Gardens of the Calouste Gulbenkian Foundation, and the stylish Avenida da Liberdade with its boutiques and cafés. For those wishing to venture a little further, the historic centre offers charming streets in Baixa, the bustling Rossio Square, and stunning city views from Miradouro da Senhora do Monte. This late afternoon provides a perfect opportunity to soak in Lisbon's vibrant atmosphere and discover the city at a relaxed pace.

You may find in the official site of Lisbon Tourism some information about the city and places to visit:
<https://www.visitlisboa.com/en>



Joint Meeting of EDEWG and ENFHEX in Lisbon, 2026

General Information

DIRECTIONS & TRANSPORTATION

Venue

Polícia Judiciária – Direção Nacional / Diretoria de Lisboa
Edifício Sede da Polícia Judiciária, Rua Gomes Freire, 1169-007 Lisboa, Portugal

Arriving from Lisbon Airport (Humberto Delgado Airport – LIS)

The venue is located approximately 15–20 minutes from Lisbon Airport by taxi or rideshare, depending on traffic.

By Taxi / Uber / Bolt

Taxis, Uber, and Bolt are readily available at the airport arrivals area.

Estimated travel time: 15–20 minutes

Estimated cost: EUR 10–15

By Metro

Take the *Red Line* (Linha Vermelha) from the airport station (Aeroporto) towards *São Sebastião*.

Exit at *Saldanha* station and walk approximately 10 minutes towards the venue.

OR

Change at *Saldanha* to the *Yellow Line* (Linha Amarela) towards *Rato* and exit at *Picoas* station. The venue is approximately a 5-minute walk from *Picoas* station.

Estimated total travel time: 30–40 minutes.

Map

Google Maps: [link](#)

Metro station website & map: [link](#)

Map from the Airport to Saldanha by metro and from Saldanha Metro Station to the venue

