Latent Print Examiner Black Box 2022 Study — Instructions

DRAFT IN PROGRESS FOR COMMENT

Contents

1 Overview

The Latent Print Examiner Black Box Study 2022 (LatentBB22) is being conducted to measure the accuracy and reproducibility of latent print examiners' decisions when comparing latents to known fingerprints that were acquired by searches of the FBI Next Generation Identification (NGI) system, and to compare these results with those from previously published Black Box studies. In particular, this study will evaluate whether latent print examiner performance has changed since the 2009-2011 FBI-Noblis Latent Print Black Box Study ("BB"), in which nonmated image pairs were selected using the earlier FBI IAFIS (Integrated Automated Fingerprint Identification System).

In the decade since the publication of the original BB study, the accuracy of automated latent fingerprint algorithms improved significantly between IAFIS and NGI: NGI searches are much more likely to return the correct candidates, and poor-quality latents are much more likely to be successfully searched. In addition, the FBI's fingerprint repository has significantly increased the number of records that it contains.[1] One side effect of these changes is that we can expect that high-ranking nonmated candidates returned by NGI may be much more

[1] *In 2009 (when the initial BB study nonmated image pairs were selected), the IAFIS database contained approximately 58 million subjects. When the LatentBB22 image pairs were selected in 2021, the NGI database contained approximately 128 million subjects. Therefore, the initial BB study was conditioned on 580 million distinct fingers, whereas current NGI searches are conditioned on 1.28 billion distinct fingers. Note also that under IAFIS, one rolled impression from each finger was included in the database; under NGI, multiple rolled and plain impressions from each finger are included in the database search.*

similar than those returned by IAFIS — which raises the potential concern that latent print examiners using NGI are being asked to conduct more challenging comparisons, which in turn may have an effect on accuracy or reproducibility of their conclusions.

This study will build on BB but was designed to assess an error rate specific to NGI searches, and incorporate a variety of lessons learned regarding how to design, conduct, and perform analyses in black box studies.

Purpose: To conduct a "Black Box" study of latent print examiners (LPEs) to assess if the accuracy and reproducibility of LPEs' conclusions have changed since the IAFIS-based 2009-2011 FBI-Noblis Black Box Study.

Rationale: We assume that high-ranking nonmated candidates returned by NGI may be much more similar than those that were returned by IAFIS, which may affect the accuracy of latent print examiners' conclusions.

Participation: Participation in this study is limited to latent fingerprint examiners from U.S. federal, state, local, tribal, and territorial government agencies (i.e., agencies that have access to the FBI NGI system), who have conducted casework (latent print examination, technical review, or verification) as an employee or contractor for one of the above agencies within the last 2 years.

Test procedure: This study will be conducted electronically via custom web-browser-based software, hosted using AWS (Amazon web services). Each participant will be assigned a series of 100 image pairs (IPs) and asked to respond to a series of multiple-choice questions, including the value (suitability) of the latent, the comparison conclusion, and the difficulty of the comparison. Each participant will also complete a short background questionnaire prior to beginning the study and a brief post-test questionnaire after completing all assigned comparisons.

Data: Image pairs examined in this study will include one latent fingerprint image and one exemplar image (rolled or plain fingerprint from a ten-print set) for comparison.

Note: This study is being conducted in coordination with the FBI Security Division and Criminal Justice Information Services (CJIS) and will comply with their requirements.

2 Eligibility

Because of privacy and human subject research restrictions on use of the fingerprint data, participation in this study is limited to latent fingerprint examiners from U.S. federal, state, local, tribal, and territorial government agencies (i.e., agencies that have access to the FBI NGI system).

To be eligible, latent fingerprint examiners must have conducted casework (latent print examination, technical review, or verification) as an employee or contractor for one of the above agencies within the last 2 years.

Participants who are eligible for the study will be required to complete i.) an electronic consent form and ii.) a web-based data-use agreement prior to beginning the study (see Section 3 for additional information).

3 Registration

Please go to the LatentBB22 study website {(TBD)} to register for this study. The website is accessible using an ordinary web browser; there is no need to download or install any additional software or plugins. The website is compatible with the most recent releases of Google Chrome, Mozilla Firefox, {Microsoft Edge,} and Apple Safari. Using older versions may result in errors. Internet Explorer is not supported.

To register for this study, eligible participants must complete the following:

- Online data-use agreement — see *Section 3.1*
- Online informed consent form — see *Section 3.2*
- Online registration form — see *Section 3.3*

After completion of these items, you will use the email address that you provided along with the password you create during the registration process in order to access the LatentBB22 study website {(TBD)}. To enable the necessary security given that we are dealing with fingerprint samples, the study website requires two-factor authentication via text message to log in.

3.1 Online data-use agreement

You will then be prompted to complete the online data-use agreement, which outlines a number of terms and conditions that must be followed in order to participate in this study.

The text for the online data-use agreement is duplicated in this document in Appendix B.

3.2 Online informed consent form

Participation in this study requires completion of an electronic informed consent form. The LatentBB22 study website will provide you access to this form as part of the registration process. Please complete the required informed consent fields on the website. After completion of this form, we recommend that you print or save a PDF copy for your records.

The text for the online informed consent form is duplicated in this document in Appendix C.

3.3 Online registration form

The website will then prompt you to complete the online registration form, which collects your contact information and sets up your LatentBB22 study website login credentials.

The text for the electronic registration form is duplicated in this document in Appendix D.

4 Background Questionnaire

After completing the online consent form and data-use agreement, each participant will be required to complete a short web-based background questionnaire comprised of multiple-choice questions. Participants must complete the background questionnaire in order to be assigned image pairs for examination. The background questionnaire will be accessible via a link on the Participant Homepage of the {LatentBB22 study website {(TBD)} }.

The primary aim of the questionnaire is to characterize participants' training and experience in latent prints. The background questionnaire will not request participants' names, employer, or any other personally identifiable information. The questionnaire saves your progress as you complete each set of questions, so you will be able to return later (the questions do not need to be answered all at one time).

The text for the online Background Questionnaire is duplicated in this document in TBD.

Please review the "LatentBB22 — Glossary" (Appendix A) prior to beginning the background questionnaire for details about the acronyms and terminology as specifically used in this study.

5 Fingerprint Image Pair Examinations

In this study, you will be asked to perform a series of friction ridge impression examinations on 100 assigned image pairs. Each image pair includes one latent fingerprint image and one exemplar (ten-print) image for comparison (see Section 5.1 for additional details regarding image preparation for this study). You will also be provided the following meta-data for each image pair:

- Exemplar finger position (e.g., right index finger, left thumb)

- Latent print substrate (e.g., paper, sticky side of duct tape)
- Latent print processing method (e.g., ninhydrin, black powder)

All examinations must be conducted within the study website — due to data-use restrictions, you will not be permitted to download any fingerprint images. To facilitate your examination, the study website will provide a variety of image adjustment tools; you will also be permitted to mark non-retained reference points for use in your examination. For additional details about software functionality, see Section 5.2.

Conduct your examinations of each image pair and respond to each of the questions, using the same considerations and diligence that you would employ for operational casework (see Section 5.3 for the image pair examination questions). As a quality assurance measure, you will have access to only one image pair at a time: to avoid the possibility of administrative errors or misunderstandings, you must submit your responses for a given image pair before you will be granted access to your next assigned image pair for examination.

For general considerations relevant to the examinations that you complete for this study, see Section 5.4.

Prior to the release of the actual study data, a "Beta Test" will be temporarily available to participants via their Participant Homepage on the LatentBB22 study webpage and will consist of three image pairs for examination. Although the Beta Test is not required, participants are highly encouraged to complete it as practice and are welcomed to provide feedback for improving the study (e.g., clarity of image pair examination questions, functionality of software, etc.). Once the actual study data becomes available, the Beta Test will be removed from the website.

5.1 Image Preparation

All latent print and exemplar fingerprint images included in this study are presented in the study software at 1000ppi resolution in 8-bit grayscale. All latent and exemplar images were cropped close to the fingerprint, effectively removing excess background, other impressions, or extraneous text not relevant to this study. The full fingerprints available for comparison are represented in the images provided in this study — none of the latent/exemplar prints are cut-off or cropped out.

5.2 Software Functionality

You will conduct all assigned image pair comparisons directly in the custom web-browser-based software designed for this study — due to data-use restrictions, you will not be permitted to download any fingerprint images for processing or comparison in other software. To facilitate your examination, the study website will provide a variety of image adjustment tools including zoom, panning, rotation, and limited contrast variation options; you will also be permitted to mark non-retained reference points for use in your examination. You may optionally use these tools during your examination; they are for your benefit and may be used or ignored at your discretion.

TBD: Come back and populate based upon documentation/discussions with Will and Shay

- Zoom: images linked, press zoom button
- Pan: ideally use a hand tool (optionally, use bars at bottom and side)
- Rotate (incremented):
- Contrast variations: baseline (no image adjustment), histEQ, light (gamma20), dark (gamma05), invert
- Reference point marking: points can be marked on either image (latent or exemplar), points not retained for analysis, points not retained when rotating?

5.3 Fingerprint Examination Questions

On the LatentBB22 study website, you will be asked to answer the following questions for ***each*** of the 100 image pairs you are assigned to examine. These questions are completed online; this information is provided here as reference.

Please complete your examinations of the image pair and enter your responses regarding your analysis, comparison, and evaluation determinations. {You will be permitted to save your responses and return to complete response entry within a single image pair assignment.}

Note for each image pair examined, you will be asked to review and confirm your responses prior to submission. After submission, your responses are considered final and cannot be changed.

Image Pair Assignment Details

1. Please re-enter the Participant ID shown at the top of the page (Nxxxx):_____

   Note: this information will be used for quality assurance purposes only. The Participant ID (a 5-character alpha-numeric string starting with N) is located at the top right of the {Image Pair Examination} Page (right above the fingerprint images).

2. Please double-check the Image Pair number: enter that Image Pair number here (For example, in the Beta Test, you would enter the following Image Pair number: 999): _____

   You do not need to enter the "NB_" portion; please only enter the three-digit Image Pair number.

Analysis: Suitability/Value

3. Based upon your analysis, please indicate the value of the LATENT print in this image pair.

3.a ***Of value (V)*** *— The LATENT is suitable for comparison, and you do not consider it limited, borderline, or of value for exclusion only.*

3.b ***Limited value/borderline (VLIM)*** *— The LATENT is possibly or debatably suitable for comparison. Use this category if the LATENT is of value for exclusion only (meaning it does not contain sufficient friction ridge information to make an identification even if an appropriate exemplar were available).*

3.c ***No value (NV)*** *— The LATENT does not contain sufficient friction ridge information to be used for comparison.*

4. Based upon your analysis, please indicate the value of the EXEMPLAR print in this image pair.

4.a ***Of value (V)*** *— The EXEMPLAR is suitable for comparison, and you do not consider it limited, borderline, or of value for exclusion only.*

4.b ***Limited value/borderline (VLIM)*** *— The EXEMPLAR is possibly or debatably suitable for comparison. Use this category if the EXEMPLAR is of value for exclusion only (meaning it does not contain sufficient friction ridge information to make an identification even if an appropriate latent were available).*

4.c ***No value (NV)*** *— The EXEMPLAR does not contain sufficient friction ridge information to be used for comparison.*

Comparison & Evaluation

Note that if either the latent or the exemplar is "no value" the questions in this section are not asked.

Note that the definitions for Source Exclusion, Source Identification, and the categories of Inconclusive are included verbatim from AAFS Standards Board, "Standard for Friction Ridge Examination Conclusions," ASB Standard 013, First Edition 2021.

If you use other terminology (such as "Individualization" or "association" instead of "Source identification") please select the most appropriate conclusion based on the provided definitions.

5. Using the following conclusion scale, select the most appropriate conclusion for this image pair comparison.

5.a *Source Exclusion — Source exclusion is the conclusion that the observed data provide substantially stronger support for the proposition that the questioned impression originated from a different source than the exemplar impressions compared. There is a strong disagreement present such that the examiner would not expect to see that level of disagreement in an impression from the same source.*

5.b *Inconclusive — the observed data do not support either Source Exclusion or Source Identification as a conclusion.*

5.c *Source Identification — Source identification is the conclusion that the observed data provide substantially stronger support for the proposition that the two impressions originated from the same source rather than different sources. There is strong correspondence present such that the examiner would not expect to see the same arrangement of features repeated in an impression from another source.*

6. *[if inconclusive]* Indicate the most appropriate subcategory for your inconclusive response.

6.a *Inconclusive with Dissimilarities — Inconclusive with Dissimilarities is the conclusion that the observed data provide more support for the proposition that the impressions originated from different sources rather than the same source; however, there is insufficient support for a Source Exclusion. There are observed dissimilarities between the impressions compared, and a lack of correspondence present such that the examiner believes the observed data are more probable if the impressions have different sources than the same source. The degree of support may range from weak to moderate to strong or similar descriptors of the degree of support.*

6.b *Inconclusive — Inconclusive is the conclusion that the observed data does not provide more support for one proposition over the other. This can occur when the observed data provide equivalent support for both same source and different source propositions, or there is no support for either proposition (such as when more complete exemplars are requested).*

6.c *Inconclusive with Similarities — Inconclusive with Similarities is the conclusion that the observed data provide more support for the proposition that the impressions originated from the same source rather than different sources; however, there is insufficient support for a Source Identification. There are observed similarities between the impressions and some correspondence present, such that the examiner believes the observed data are more probable if the impressions have same sources than different sources. However, the examiner may also expect to see similar correspondence in another source. The degree of support may range from weak to moderate to strong or similar descriptors of the degree of support.*

7. *[if source identification]* Indicate if your source identification conclusion was a borderline decision, defined in this way: If another qualified examiner performed blind verification on this image pair and reached a different conclusion than you, how surprised would you be?

7.a *Not borderline identification — You would be very surprised if another examiner disagreed: you would expect almost every qualified examiner to reach a conclusion of source identification.*

7.b *Borderline identification — You would NOT be very surprised if another examiner disagreed: you would expect some qualified examiners might disagree and make an inconclusive determination.*

8. *[if source exclusion]* Indicate if your source exclusion conclusion was a borderline decision, defined in this way: If another qualified examiner performed blind verification on this image pair and reached a different conclusion than you, how surprised would you be?

8.a *Not borderline exclusion — You would be very surprised if another examiner disagreed: you would expect almost every qualified examiner to reach a conclusion of source exclusion.*

8.b *Borderline exclusion — You would NOT be very surprised if another examiner disagreed: you would expect some qualified examiners might disagree and make an inconclusive determination.*

9. *[if source exclusion]* Was your source exclusion decision based SOLELY on pattern class/ridge flow alone?

9.a *Yes — The exclusion decision was based ONLY on differences in pattern class/ridge flow; minutiae and other level-2/level-3 features were not a basis for exclusion.*

9.b No — *The exclusion decision was not based on pattern class/ridge flow alone; minutiae and/or other level-2/level-3 features were used at least in part as a basis for exclusion.*

10. Rate the difficulty of this image pair comparison.

> *In other words, how difficult was it to reach a comparison determination for this image pair?*
>
> *Note: routine comparisons should be indicated as "moderate" difficulty. Comparisons you would classify as "complex" should be indicated as "Difficult" or "Very Difficult."*

10.a ***Very Easy/Obvious*** *— The comparison determination was obvious.*
10.b ***Easy*** *— The comparison was easier than most latent comparisons.*
10.c ***Moderate*** *— The comparison was a typical latent comparison.*
10.d ***Difficult*** *— The comparison was more difficult than most latent comparisons.*
10.e ***Very Difficult*** *— The comparison was unusually difficult, involving high distortion and/or other red flags.*

Limitations

> *Note that if either the latent or the exemplar is "no value" the questions in this section are not asked.*

11. Please indicate any limitations that kept you from making a more definitive conclusion OR that were a notable source of difficulty in making the comparison. (Check all that apply; leave blank if none apply)

11.a *Inadequate area of potential correspondence (little or no overlap between the areas included in the latent and exemplar)*
11.b *Insufficient number of features in area of potential correspondence (the areas included in both latent and exemplar have few features to use in comparison)*
11.c *Quality/clarity of the exemplar*
11.d *Distortion in the latent*
11.e *Background/substrate interference in the latent*
11.f *Processing interference in the latent*
11.g *Superimposed impressions in the latent*
11.h *Other quality/clarity issues in the latent (other than distortion or background/substrate/processing interference)*

Representativeness

> *Note that these are asked even if the latent is "no value."*

12. Is the QUALITY of this latent typical of the latents you encounter in operational casework?

> *In other words, do you generally evaluate latents of similar/comparable quality as this latent in operational casework?*

12.a ***Yes*** *— I often see latents of this quality in casework*
12.b ***Somewhat*** *(high quality) — I rarely see latents that are this high quality in casework*
12.c ***Somewhat*** *(low quality) — I rarely see latents that are this low quality in casework*
12.d ***No*** *(high quality) — I never see latents that are this high quality in casework*
12.e ***No*** *(low quality) — I never see latents that are this low quality in casework*

13. Are the SUBSTRATE AND PROCESSING of this latent typical of the latents you encounter in operational casework?

13.a ***Yes*** *— I often see latents with similar substrate and processing in casework*
13.b ***Somewhat*** *— I infrequently see latents with similar substrate and processing in casework*
13.c ***No*** *— I never see latents with similar substrate and processing in casework*

Additional Comments

14. Additional comments: Please provide a comment ONLY if there was an issue or limitation for this image pair comparison that you could not adequately address using any of your responses above. (Please limit your responses to 75 words or less.)

> *This comment box is intended to allow participants to provide comments on the test process to the test administrators. Examples include software issues, data entry errors, an exceptional image whose inclusion in the study might be inadvertent, or any problems taking the test. The comment box is* ***not*** *intended to routinely capture your thought process in reaching conclusions: comments should be reserved for exceptional circumstances.*

5.4 General Considerations

- Assume that the images provided are the only images available, and that physical evidence, lift cards, fingerprint cards, additional exemplars, and different images of these prints are not available.
- Every impression is a fingerprint (from the distal segment of a finger or thumb), not a palmprint or lower joint.
- Do not assume that latents are presented upright.

6 Post-Test Questionnaire

After completing all assigned image pair examinations, you will be prompted to complete a short post-test questionnaire in the LatentBB22 study website ({TBD-URL}). The goal of this questionnaire is to gather additional insights regarding the participant testing experience, quality of the test materials, and the casework representativeness of the image pairs. The post-test questionnaire includes the following questions (Note that this question is completed online; this information is provided here as a reference).

1. Overall, was the quality of the EXEMPLARS in this study representative of the exemplars you see in casework?

— Study exemplars were higher quality than casework

— Study exemplars were similar to casework

— Study exemplars were lower quality than casework

2. Overall, was the quality of the LATENTS in this study representative of the latents you see in casework?

— Study latents were higher quality than casework

— Study latents were similar to casework

— Study latents were lower quality than casework

3. Overall, were the PROCESSING METHODS AND SUBSTRATES of the latents in this study consistent with the latents you see in casework?

— Yes: the processing methods and substrates are typical of what is encountered in casework

— Almost all: almost all of the processing methods and substrates are typical of casework, but a few are unusual or encountered infrequently in casework

— Somewhat: some of the processing methods and substrates are typical of casework, but some are unusual or encountered infrequently in casework

— No: the processing methods and substrates of the latents in the study are notably different from those encountered in casework

4. Overall, how did the difficulty of the comparisons you performed in this study correspond to the comparisons you've performed in operational casework?

- *— Overall, the comparisons in this study were much easier than operational casework.*
- *— Overall, the comparisons in this study were easier than operational casework.*
- *— Overall, the comparisons in this study were typical (in terms of difficulty) to operational casework.*
- *— Overall, the comparisons in this study were harder than operational casework.*
- *— Overall, the comparisons in this study were much harder than operational casework.*

5. Please provide any additional comments you have about the study overall. (Please limit your responses to 75 words or less.)

7 Anonymity

Results will be anonymous. Efforts will be made to keep your information in the study records confidential. The research results may be published, but anonymity of both participants and attribution of results to participants will be maintained. Personally Identifiable Information (PII) will be used only for the purpose of conducting the study and will not be used or released for other purposes. Your study results will not be linked to your PII. No reference will be made in oral or written reports, publications or in the databases in which results may be stored that could link your name to the study. A blind coding system will ensure anonymity. The subject ID numbers associated with your name, email address, and affiliation will be anonymized so that the analysis team will not be able to associate your conclusions or the responses to the questionnaire with any personal information. Cross-references between the subject IDs and individual results will be destroyed prior to the publication or public presentation of any results. Therefore, the identities of participants will not be associated with the results at any point during analysis, and such association will not be possible subsequently, such as for discovery.

The researchers will not disclose which individuals did or did not take the test. In reporting, results will be aggregated across multiple examiners, based on categories of experience established in the background questionnaire. Care will be taken so that the results are not aggregated in a way that compromises anonymity.

Appendix A Glossary

TBD

Appendix B Data-Use Agreement

On the {LatentBB22 study website}, select "Register" and as part of the registration process you will be presented with the following data-use agreement. Note that acknowledgment of the data-use agreement is completed online; this information is provided here as a reference.

Use of the fingerprint images in this study has been approved for human subject research by the FBI Institutional Review Board (IRB) with specific restrictions on their use.

Prior to participating in this study, you must agree to the following:

- *I will not use the fingerprint images included in this study for any purpose other than this study.*
- *I will not share the fingerprint images included in this study with anyone, and I will not collaborate with anyone on my responses.*
- *I will not download, store, or retain the fingerprint images included in this study.*
- *I agree to conduct the comparisons in this study with the same regard and diligence used when conducting operational casework.*

Appendix C Informed Consent Form

On the {LatentBB22 study website}, you will be presented with the following informed consent form as part of the registration process. Note that informed consent is completed online; this information is provided here as a reference.

Project Title

NGI Black Box Latent Print Examiner

Principal Investigator

JoAnn Buscaglia, PhD

Purpose

In this study, images of fingerprints will be used and participants will be asked to perform 1:1 comparisons of latent and (inked, live scan) prints. The study will evaluate the ability of latent fingerprint examiners to reach reliable and/or accurate conclusions when comparing friction ridge images.

Study Contacts

The Principal Investigator (PI) for this study is Dr. JoAnn Buscaglia, who can be reached at (703) 632-4553 or via email at jbuscaglia@fbi.gov.

Procedures

If you agree to participate, you will be asked to complete a questionnaire and perform 1:1 comparisons of latent and known (inked, live scan) prints. All results are anonymous.

Risks and Discomforts

There are no risks to you as a result of participating in this study.

Benefits

There are no direct benefits to you from participation in this study. However, there is a significant benefit to society in improving our ability to solve crimes, prosecute those who commit them, and ensure the continued admissibility of fingerprint evidence in court.

Alternatives

You are free to participate or not participate in this study. If you choose not to participate, there will be no negative consequences.

Costs

No charges will be billed to you for this study.

Confidentiality

Results will be anonymous. Efforts will be made to keep your information in the study records confidential. The research results may be published, but anonymity of both participants and attribution of results to participants will be maintained. Personally Identifiable Information (PII) will be used only for the purpose of conducting the study and will not be used or released for other purposes. Your study results will not be linked to your PII. No reference will be made in oral or written reports, publications or in the databases in which results may be stored that could link your name to the study. A blind coding system will ensure anonymity. The subject ID numbers associated with your name, email address, and affiliation will be anonymized so that the analysis team will not be able to associate your conclusions or the responses to the survey with any personal information. Cross-references between the subject IDs and individual results will be destroyed prior to the publication or public presentation of any results. Therefore, the identities of participants will not be associated with the results at any point during analysis, and such association will not be possible subsequently, such as for discovery.

The researchers will not disclose which individuals did or did not take the test. In reporting, results will be aggregated across multiple examiners, based on categories of experience established in the background questionnaire. Care will be taken so that the results are not aggregated in a way that compromises anonymity.

Request for More Information

A copy of this consent form will be given to you to keep if you want one. You may ask more questions about the study at any time. The PI's telephone number and email address are listed under "Study Contacts"; she is available to answer your questions or concerns about the study.

If during the study or later, you wish to discuss your rights as a research subject, your participation in the study and/or concerns about the study, or a research-related injury with someone not directly involved in the study, you are asked to contact the FBI Institutional Research Board. You can do so by contacting the FBI Office of the General Counsel Investigative Law Unit at (202) 324-5640.

Refusal or Withdrawal of Participation

Participation in this study is voluntary. Although we appreciate your participation in this research study, it is not mandatory, and there will not be any negative consequences of refusing to do so. If you decide to participate, we encourage you to complete the entire study. However, if you choose, you may withdraw from the study at any time, and any information or data collected or generated by you will be irrevocably deleted and not used.

Injury Statement

If you are injured during the course of the study or as a direct result of this study, you should contact the PI at the number provided. You will be offered the necessary care to treat the injury. This care does not imply any fault or wrongdoing on the part of the FBI or the researchers involved. The FBI will not provide you with any additional compensation for such injuries. Where applicable, the FBI reserves the right to bill third party payers for services you receive for the injury.

Signature

I confirm that the purpose of the research, the study procedures and the possible risks and discomforts as well as potential benefits that I may experience have been explained to me. Alternatives to my participation in the study also have been discussed. All of my questions have been answered. I have read this consent form. My signature below indicates my willingness to participate in this study and that I consent to the participation described herein.

Appendix D Registration Questions

On the {LatentBB22 study website}, as part of the registration process you will be asked for the following information after the informed consent form. Note that registration is completed online; this information is provided here as a reference.

Please read "LatentBB22 — Instructions" (available on the LatentBB22 study website) prior to completing this form. That document provides an overview of the study and details on eligibility, registration, and anonymity of results.

Please provide the following contact information. This information will only be used to administer the study. This email address will be used to log into the study website to access data and provide responses. This cell phone number will be the one used for two-factor authentication when logging into the study website: to log into the study website, a code will be texted to this cell phone that must be entered in the website to proceed.

- *Participant First Name*
- *Participant Last Name*
- *Participant Email Address*
- *Participant Cell Phone Number (Must be able to receive text messages. Do not include dashes or spaces. US phone numbers must start with "+1"; non-US numbers start with "+" and country code.)*
- *Password (Must be at least 12 characters, and include at least one each of [uppercase letters, lowercase letters, digits, and symbols])*
- *Confirm Password*

Appendix E Background Questionnaire Questions

TBD: insert when complete