



IRB Project #: 21969

1. Study Title:

Whole Body Analysis with Transformed Cross-modality Hierarchical Features for Biometric Identification

2. Authorized Study Personnel

Principal Investigator: Mun Wai Lee, (301) 294-4762, MunWai.Lee@bluehalo.com

Secondary Investigator: Benjamin S. Riggan, (402) 472-1183, briggan2@unl.edu

Study Personnel:

Katrina Gramzinski, 240-406-7903, katrina.gramzinski@bluehalo.com

Phillip Berkowitz, 301-294-4247, phillip.berkowitz@bluehalo.com

Nkiruka Uzuegbunam, 240-406-5768, nkiruka.uzuegbunam@bluehalo.com

Cedric Nimpa Fondje, cedricnimpa@huskers.unl.edu

Kshitij Nikhal, knikhal2@huskers.unl.edu

3. Key Information:

The following is a short summary of the study to help you decide whether to be a part of this study. More detailed information is included later in this form.

You are being invited to take part in a research study conducted by Mun Wai Lee from Intelligent Automation, a BlueHalo Company and Benjamin Riggan from the University of Nebraska-Lincoln. Your actual participation is expected to require two (2) hours or less of your time in a single visit. Your visit will not exceed three (3) hours. Your participation in this study will include a Visa gift card payment of \$50 for completing the data collection with your first outfit and \$50 for completing the data collection with your second outfit, for a total of \$100. Please take the time to read the following information carefully. Ask us questions if anything is not clear or if you would like more information. Take your time to decide whether you agree to volunteer to take part in this research study.

This study is in support of the Intelligence Advanced Research Projects Activity (IARPA) Biometrics Recognition and Identification at Altitude and Range Testing and Evaluation (BRIAR) program. This research is to improve the types of imagery and sensors that can be used for reliable and accurate biometric matching. Further research in biometric recognition and identification at altitude and range may support protection of critical infrastructure and transportation facilities, military force protection, and border security.

The objective of this project is to collect several images and videos of individuals while they stand at different poses or perform other simple tasks such as walking. The images are collected from several camera systems some of which look at the face and others used to take whole-body measurements. These systems may be close to the individual, at a great distance, mounted to poles or attached to unmanned aerial vehicles (UAVs). The use of several camera systems at various distances or heights allows the team to collect a large variety in quality of images for future use to evaluate the capability of AI systems to recognize individuals in non-ideal scenarios. There will be a clothing change in between a set of stations and participants are asked to bring a minimum of a pair of pants, a pair of shoes, and white shirt, in addition to what they are wearing that day. If the participant does not own a white t-shirt, one can be provided for them. Nearby restrooms will be used as a changing room. A team member will always be with the participant to provide instructions. Photos and/or videos may be used in public presentations and there is a check box at the end of this form to opt-in. You may be contacted for future research projects, including for this project, if you opt-in to be contacted in the future.

If you agree to participate in this research study, the project will involve:

- Research participants ages 19 and older
- Procedures will include collecting demographic information during registration and two rounds of indoor biometric enrollment (face, whole body, and gait) and outdoor biometric collection (face, whole body, gait) using two different outfits.
- One (1) visit is required
- These visits may take a up to three (3) hours total, but are expected to be two (2) hours or less.
- There are risks associated with this study, including the collection private information (video and demographic information), operation of unmanned aircraft, and nominal risks associated with being outdoors
- Your data collected from this study may be shared as described below
- You will receive \$100 (\$50 per outfit for two different outfits) for your time and participation
- You will be provided a copy of this consent form
- Your participation is voluntary and you can decide not to participate at any time

4. Invitation

You are invited to take part in this research study. The information in this consent form is meant to help you decide whether or not to participate. If you have any questions, please ask.

5. Why are you being asked to be in this research study?

We invite you to take part in a research study because the Intelligence Advanced Research Projects Activity (IARPA) has tasked the principal investigator (PI) to perform human subject testing to collect images and videos for human identification from various distances. This study will recruit individuals 19 year or older, such as yourself, from the public.

6. What is the reason for doing this research study?

The reason for this research study is to develop software algorithm-based systems capable of performing face and whole-body (WB) biometric identification at long-range and from elevated platforms. The goal is to develop the capability to identify or recognize individuals under challenging scenarios, such as at long-range (e.g., 300+ meters), through atmospheric turbulence, or from elevated and/or aerial sensor platforms (e.g., $\geq 20^\circ$ sensor view angle from watch towers or Unmanned Aerial Vehicles (UAVs)). This capability would expand the range of conditions in which accurate and reliable biometric-based identification could be performed.

This study will support biometric algorithm research and development under range and elevation conditions.

This study is being conducted by the Intelligent Automation, A BlueHalo Company and the University of Nebraska-Lincoln (UNL). A total of about 200 (up to 300) people will participate in this study. All participants will take part in the study here at UNL.

7. What will be done during this research study?

You will be asked to complete one (1) study visit. During this visit, the following will be completed:

A. Registration & Consent to Participate:

- Personnel approved to accept consent will explain this research study to you.
- You can opt-in to also use your photos/videos for public presentations and/or reports.
- Whether or not you take part is up to you.
- You can choose not to take part.
- You can agree to take part and later change your mind.
- Your decision will not be held against you.
- You can ask all the questions you want before you decide.

B. Demographic Information Survey: We will ask you to provide you age, gender, and ethnicity information. This survey will take approximately 2 minutes.

C. Height, Weight, and Extremity Measurements: Your height, weight, and extremity measurements (e.g., arm length, leg length, etc.) will be measured at the beginning of your participation. We will ask you to step on a scale to obtain your body weight and height. This procedure will take approximately 5 minutes.

D. Collect Indoor Face & Whole Body Enrollment Videos/Images: We will collect images and videos of a your face and whole body from different angles while the participant is standing still.

E. Collect Indoor Gait Enrollment Videos/Images: We will collect/record videos while you are walking.

F. Collect Outdoor Videos/Images: We will collect/record videos while the participant is walking, from multiple cameras positioned at different distances (up to 1,000m) and from two UAVs.

G. Outfit Change: You will proceed to the private, single person restroom facility to change outfits. Clothing change for this collection requires having (wearing/bringing) one plain white t-shirt and one non-white t-shirt, two pairs of pants, and two pairs of shoes (total two full outfits). Pants must be form fitting (e.g., jeans, trousers, leggings).

H. Repeat D-F: We will collect images and videos of you from indoor and outdoor settings a second time with your outfit change.

I. Acknowledgement of Payment: After completing A-H (or A-F), you will be paid \$100 (or \$50) in Prepaid Visa gift cards (\$50 per outfit). In order to document your receipt of the payment, you must provide your name and address to the research team by signing a participant acknowledgement of payment form.

8. How will my data/imagery be used?

This study will involve the collection of identifiable private information (name, dates, and images/videos for biometric identification). Your information and data could be used or distributed to another researcher for future research studies without an additional informed consent from you. Identifiers (name, dates, etc.) will be removed prior to being distributed to other organizations; however, you should be aware that facial and body imagery will still be included in the video records when shared. Other organizations expected to have access to information from this study include but are not limited to: the Institutional Review Board, Federal Bureau of Investigation, National Institute of Standards and Technology, Department of Energy, Department of Defense, Department of Homeland Security, Department of Justice, Night Vision Laboratories team, Intelligence Advanced Research Projects Activities, and universities, organizations, or contractors working on behalf of IARPA or the Federal government.

Before distributing data or information to any organization for R&D, investigators will be required to have their organization/institution or approving authorities submit a signed Data Use Agreement (DUA). Moreover, requesting investigators will also be required to submit documentation from their IRB indicating approval to obtain and perform human subject research using the requested identifiable data.

9. Will I be notified if my data/imagery result(s) in an unexpected finding?

When data are collected and analyzed, there is the chance of finding something unexpected. There may be benefits to learning such results (such as early detection and treatment of a medical condition), but there are risks as well (such as feeling worried about a finding for which no treatment is required or appropriate).

The results from the data/imagery we collect in this research study are not the same quality as what you would receive as part of your health care. The data/imagery results will not be reviewed by a physician who normally reads such results. Due to this, you will not be informed of any unexpected findings. The results of your data/imagery will not be placed in your medical record with your primary care physician or otherwise. If you believe you are having symptoms that may require care, you should contact your primary care physician.

10. What are the possible risks of being in this research study?

The risks of participating in this study are minimal. The primary risk is privacy concerns due to the usage of photos and videos and demographic information of participants. However, the dataset will be stored on secure, access-controlled computers in accordance with requirements for the protection of personally identifiable information (PII).

Additional risks are typical with being outdoors in a natural area including sun exposure, bugs, and heat. Small, unmanned aircraft (aka “drones”) are being operated in this project. All aircraft will be operated by certified flight crews. Additionally, onsite medical/first aid care will be provided at no cost to participants, should any slips, trips or falls occur. If you choose to participate, you can tell the researcher of any concerns and ask any questions.

All precautions are taken to reduce risk. Sunscreen, insect repellent, water, and refreshments will be provided if needed. If you choose to participate, you can tell the researcher of any concerns and ask any questions.

It is possible that other rare side effects could occur which are not described in this consent form. It is also possible that you could have a side effect that has not occurred before.

11. What are the possible benefits to you?

You are not expected to get any benefit from being in this study.

12. What are the possible benefits to other people?

Research based on the data collected under this study will contribute towards improved understanding and technology that supports national security. There may be possible benefits to society and the research community based on results from this study. Your participation may help us develop, test, and evaluate new methods to identify and recognize individuals under sub-optimal imaging conditions. Currently, no publicly available dataset exists that represents the imagery needed to address these technical challenges. Your participation will help us build this novel dataset

13. What are the alternatives to being in this research study?

Instead of being in this research study you may choose not to participate.

14. What will being in this research study cost you?

Participants will provide their own transportation to and from the study, which is lost time. This is accounted for with the incentive. There are no anticipated costs that participants may be responsible for because of their participation in the research.

15. Will you be compensated for being in this research study?

We will pay you \$100 (\$50 for each outfit) for participating in this study through prepaid Visa gift cards. Payment will be provided at the end of the study visit. If your participation ends before the visit is complete, you will receive \$50 for each outfit collected.

In order to document your receipt of the payment, you must provide your name and address to the research team by signing a participant acknowledgement of payment form. Payment records will be stored for up to 7 years and may be stored with Financial Personnel at the University.

16. Who is paying for this research?

The sponsor of the research is Intelligence Advanced Research Projects Activity (IARPA). The University of Nebraska-Lincoln receives money from the sponsor to conduct this study.

17. What should you do if you have a problem during this research study?

Your welfare is the major concern of every member of the research team. If you have a problem as a direct result of being in this study, you should immediately contact one of the people listed at the beginning of this consent form.

18. How will information about you be protected?

Reasonable steps will be taken to protect your privacy and the confidentiality of your study data; however, in some circumstances we cannot guarantee absolute privacy and/or confidentiality.

The research records will be securely stored electronically through University-approved methods and will only be seen by the research team and/or those authorized to view, access, or use the records during and after the study is complete.

Those who will have access to your research records are the study personnel, the Institutional Review Board (IRB), or any other person, agency, or sponsor as required by law or institutional responsibility, including U.S. Government, BRIAR Test & Evaluation (T&E) team, and BRIAR performers (institutions). Additionally, the data Information from this study may be published in scientific journals or presented at scientific meetings and may be reported individually, or as group or summarized data but your identity will be kept strictly confidential.

19. HIPAA Information (Personal Health Information) Access

This study does not involve any use, access, or collection of personal health information (PHI)

20. What are your rights as a research subject?

You may ask any questions concerning this research and have those questions answered before agreeing to participate in or during the study.

For study related questions, please contact the investigator(s) listed at the beginning of this form.

For questions concerning your rights or complaints about the research contact the Institutional Review Board (IRB):

- Phone: 1(402)472-6965
- Email: irb@unl.edu

21. What will happen if you decide not to be in this research study or decide to stop participating once you start?

You can decide not to be in this research study, or you can stop being in this research study (“withdraw”) at any time before, during, or after the research begins for any reason. Deciding not to be in this research study or deciding to withdraw will not affect your relationship with the investigator or with the University of Nebraska-Lincoln or Intelligent Automation, a BlueHalo Company.

You will not lose any benefits to which you are entitled.

You can withdraw at any time, and it will not be held against you, but withdrawal two weeks or more after participation will be more difficult due to images/videos possibly having already been distributed. If you decide to withdraw prior to completing your participation, you may cancel your appointment, inform a team member who is present at the collection site, or contact a team member at 240-406-7788 or motionstudy@i-a-i.com. If you withdraw after your participation, your data may be retained for group images or videos used in the study; however, we will remove individual data from the study where possible, depending on the timeframe. Some data including your appearance may be maintained as part of our data archive and backups.

If you decide to withdraw after completing your participation, please contact us at 240-406-7788 or motionstudy@i-a-i.com to inform us of your decision. If withdrawal is indicated within the first two weeks following participation, all images and identifying data will be deleted and not included in analysis or held for record keeping. If the wish to withdraw is indicated more than two weeks after participation, some videos and images may have already been distributed, and the data may be retained as a permanent part of the study, datasets, and reports. **UNL will retain a record of your withdrawal for a period of 3 years after completion of the study as required by the IRB board. Data may be retained in computer backups and archives even if it is removed from the final study participation but will no longer be permitted for research or analysis activities.**

Documentation of informed consent

You are voluntarily making a decision whether or not to be in this research study. Signing this form means that (1) you have read and understood this consent form, (2) you have had the consent form explained to you, (3) you have had your questions answered and (4) you have decided to be in the research study. You will be given a copy of this consent form to keep.

Participant Feedback Survey

The University of Nebraska-Lincoln wants to know about your research experience. This 14 question, multiple-choice survey is anonymous. This survey should be completed after your participation in this research. Please complete this optional online survey at:

<http://bit.ly/UNLresearchfeedback>.

(Optional) Consent to use imagery and videos in publications, reports, and presentations

You have the option to either allow or not allow your photos and videos to shown in publication, reports, and presentations. Please choose one (1) of the following by marking your choice an **X** mark.

- ☐ I **allow** photos and videos, including my likeness, to be used in public reports (scientific journals, scientific conference publications and presentations, government reports, government presentation materials) during the conduct of this project and indefinitely for future.
- ☐ I **do not allow** photos and videos, including my likeness, to be used in public reports (scientific journals, scientific conference publications and presentations, government reports, government presentation materials) during the conduct of this project and indefinitely.

Participant Name:

(Name of Participant: Please print)

Participant Signature:

Signature of Research Participant

Date

Investigator certification:

My signature certifies that all elements of informed consent described on this consent form have been explained fully to the participant. In my judgment, the participant possesses the capacity to give informed consent to participate in this research and is voluntarily and knowingly giving informed consent to participate.

Signature of Person Obtaining Consent

Date