UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899

APR 11 2016

MEMORANDUM FOR Mei Ngan

From: Charles Romine, Director Charles H. Romine
Information Technology Laboratory

Subject: Determination for ITL Project #ITL-16-0018, entitled, "Biometric technology evaluation and standards development research - using tattoo data operationally collected outside NIST"

On April 7, 2016, the Director, Human Subjects Protection Office (HSPO) determined that your research is not human subjects research.

This determination was made based on review of the following documents:

1. NIST Determination Form, submitted March 29, 2016
2. Schematic Tattoo Data Usage
3. Data Transfer Agreement with Tennessee Department of Corrections
4. BRL Biometric Repository Annotations, dated July 8, 2011
5. BRL Prevents Readily Ascertained Identity, dated March 5, 2015
6. BRL SSP Review Affirmation, dated November 12, 2014
7. BRL User Agreement, dated June 15, 2015
8. Associated Investigator and Team Members, dated April 4, 2016
9. Reaffirmation of the Authority to Operate Decision for the ITL System, 770-01, dated December 14, 2015

You may now start your work.

You are responsible for:

1. Conducting this project as outlined in the above documents as this determination is valid only for this project,

2. Submitting revised documents if you propose to make any changes to this project as the change may affect the current determination (e.g., an updated determination form that incorporates the changes with a new version number or date with highlighting or track changes, and /or listing the specific changes in a cover memo). You may implement the changes to the project only after being notified in writing,

3. Notifying the Human Subjects Protection Office through your ITL Lab Office of changes to any agreements that may affect this determination,

NIST

4. Keeping other NIST offices, (e.g., Office of Acquisitions and Agreements Management, Technology and Partnership Office, etc.), and external collaborators informed about this determination or any approved changes to the project as appropriate,

5. Notifying your Supervisor and the ITL Lab Office when the project is complete, and

6. Maintaining complete records about the determination for this project from inception to completion.

If you have any questions, please contact Jim St. Pierre.

Attachments:
Director, HSPO Memorandum of 04/07/2016

cc: Craig Watson, Group Leader
Shahram Orandi, Division Chief
Charles Romine, Director, ITL
Anne Andrews, Director, Human Subjects Protections Office

ITL-16-0018

NIST Human Subjects Research Determination Form

Instructions:
If proposed work/project involves (1) humans, (2) biological specimens from humans, or (3) data or information about humans, use this form to determine if your work meets the definition of research with human subjects. This is the first step in determining whether the regulations for protecting human subjects apply to proposed work.

If it is clear that your proposed work meets the definition of research with human subjects and requires review by an IRB, complete the "NIST Human Subjects Research Protocol."
It is not necessary to complete this form.

1. NIST Project Lead (the Investigator accountable for the project)

Name	Mei Ngan
Title	Computer Scientist
Building/Office Phone/Email	225/A210 301-975-5274/mei@nist.gov
OU Division Group	Information Technology Laboratory (ITL) Information Access Division (IAD) Image Group (774.03)
Group Leader	Craig Watson

The associate investigators and team members are all Federal employees within group 774.03 who have taken Human Subjects Research Awareness Training specified/approved by the NIST Human Subjects Protection Office. This protocol will be amended if researchers or team members outside that group are needed.

2. Type of Work (check one or both and indicate location, if applicable)

x	NIST work
	Collaborative work Name(s) of Collaborator: Location(s) of Collaborator(s):
	Funding from NIST: Contract/Grant Recipient Institution(non-NIST): Contract/Grant #: Title of Contract/Grant: Location(s) where work will be performed:
	Funding to NIST (e.g.: RACO interagency agreements):

3. **Title(s) of Proposed Work:**
   - **Title of this project:** Biometric Technology Evaluation and Standards Development Research - Using Tattoo Data Operationally Collected Outside NIST
   - **Title(s) of related projects under the same grant:**

4. **Description of Proposed Work:**

   - Goals/Objectives of the work:

     Our goal is to carry out evaluation of biometric algorithm technologies to enable the development of standards and best practices in support of government and commercial use of biometric technology. An intermediate goal is construction of data sets of tattoo imagery that can be used for evaluations of biometric recognition algorithms and processes of interest for government and commercial systems.

   - Importance of the problem that the proposed work addresses:

     NIST has been conducting research in biometric algorithms and technology standardization for many years as part of its measurement science and standards mission and meeting mandates from the USA PATRIOT Act and Enhanced Border Security and VISA Entry Reform Act. Coded samples (in this case, tattoo images) are essential for conducting research in algorithmic matching capabilities.

   - Describe the type of data, specimens or information from humans needed for this project:

     Coded tattoo images from Tennessee Department of Corrections (TDOC) and corresponding data including gang affiliation. (See ATTACHMENT 3 - BRL Biometric Repository Annotations).

     - Describe the data elements/variable/annotations that will be used in analyses:
       Gang Affiliation

   - Source/Supplier of the data, specimens or information to be provided:

     The Tennessee Department of Corrections (TDOC) is providing a set of tattoo images and reference annotations extracted from operational database.

- Method the source/supplier uses for identifying the data, specimens or information to be provided (e.g., random number, number with code key, personal information of donor etc.):

  The TDOC has coded the dataset based on gang affiliation. No subject-related metadata will be provided with the images. No personally identifiable information about the individuals is required to evaluate the algorithms (e.g. no PII is in the algorithms or collected by the algorithms). The tattoo image data is coded for each subject and the code key is never provided to NIST.

  See the NIST Tattoo Recognition Technology Research schematic – ATTACHMENT 1.

  - Agreements or permission to use the data, specimens or information:

    The TDOC is providing a set of tattoo images to NIST following the terms and conditions and data sharing authority stated in ATTACHMENT 2 – Data Transfer Agreement

- Procedures' for ensuring confidentiality of the data, specimens or information during and after the work period:

  The coded tattoo data supplied to NIST will be stored in the NIST Biometrics Research Lab (NIST BRL); will never leave the NIST BRL; and will be accessed only by NIST researchers, which is consistent with the requirements under the Data Transfer Agreement (See ATTACHMENT 2). The BRL has specific policies and procedures in place to lock down the data (both image samples and annotations), restrict access and use of the data, and prevent readily ascertaining the identity of individuals' information (ATTACHMENTS 3 – 6).

  - See attached NIST BRL documentation:
    - ATTACHMENT 3 - BRL Biometric Repository Annotations - July 08 2011;
    - ATTACHMENT 4 - BRL Prevents Readily Ascertained Identity – March 5, 2015;
    - ATTACHMENT 5 - BRL SSP Review Affirmation –November 12, 2014; and
    - ATTACHMENT 6 - BRL User Agreement (2) -June 15, 2015;

- Plan and approach for sharing results (e.g., raw data, aggregate data, outcomes etc.) with collaborators, within NIST, or beyond (e.g., publication or presentation):

  NIST publishes research & best practices, and contributes actionable comments to standards bodies. Reports may go on the NIST web site and may be published in conference papers and journals. Tattoo data from this dataset will not be redistributed by NIST in compliance with terms in ATTACHMENT 2.

The coded tattoo data supplied to NIST will never leave the NIST BRL and will never be disseminated. The evaluation results of running algorithms on the data may be published in NIST Interagency Reports, academic conferences, and presentations.

5. Collaborations with Others:

List other institutions or agencies involved in this work. Describe how each collaborator will be involved with data, specimens or information from humans as well as any other specific contributions.

Not applicable

6. CONFLICT OF INTEREST

The PI certifies on behalf of self, spouse, registered domestic partner, and dependent children, as **well as on behalf of all investigators** and their spouses, registered domestic partners, and dependent children. "Investigator" means anyone with responsibility for the design, conduct, or reporting of the research.

PRINCIPAL INVESTIGATOR
Do you, your spouse, dependent children or household members have any direct, indirect, or related financial interest(s) related to the work to be conducted as part of this proposed project? Interests are related to the research if those interests:

- could be affected by the results or outcome of the research,
- are in the sponsor of the research (even if unrelated to the research being proposed), or
- are in another entity conducting research or business that could be affected by the research.

☒ **No**

□ **Yes** – Please identify investigator and describe conflict on separate page.

INVESTIGATORS (others who have responsibility for design, conduct, or reporting of the research)

Do any other Investigators, their spouses, dependent children or household members have any direct, indirect, or related financial interest(s) related to the work to be conducted as part of this proposed project? Interests are related to the research if those interests:

- could be affected by the results or outcome of the research,
- are in the sponsor of the research (even if unrelated to the research being proposed), or
- are in another entity conducting research or business that could be affected by the research.

☒ **No**

□ **Yes** - Please identify investigator and describe conflict on separate page.

7. Certification and Signatures

I hereby certify that the information furnished concerning the procedures to be taken for the protection of the human subjects is correct. As required under NIST policies for research involving human subjects, I will seek and obtain prior HSPO approval, including any required Institutional Review Board (IRB) approval(s), for any substantive modification of this protocol, including source(s) of funding, and will promptly report any unexpected or otherwise significant adverse effects encountered in the course of this study.

PRINCIPAL INVESTIGATOR

Signature: Date: 3/15/2016

Typed Name: Mei Ngan, Computer Scientist, Image Group

I hereby certify that this research activity has been assessed for scientific merit, anticipated contribution to the field, and feasibility. This assessment evaluated the qualifications of the research team, the scientific question, and appropriateness of the methods planned to answer the scientific question and to justify the inclusion of human subjects in research.

OU APPROVAL AUTHORITY (add additional signature blocks as required by OU policy for approving research)

Group Leader Review:

Signature: Craig Wat Date: 3/21/2016

Type Name: Craig Watson, Acting Group Leader, Image Group

Division Chief Review:

Signature: Date: 3/24/16

Typed Name: Shahram Orandi, Chief, Information Access Division (IAD)

OU Laboratory Official Review:

Signature: Charles H. Romine Date: 29Mar2016

Typed Name: Charles H. Romine, Director, Information Technology Laboratory (ITL)

ATTACHMENTS:

1 - Schematic Tattoo Data Usage
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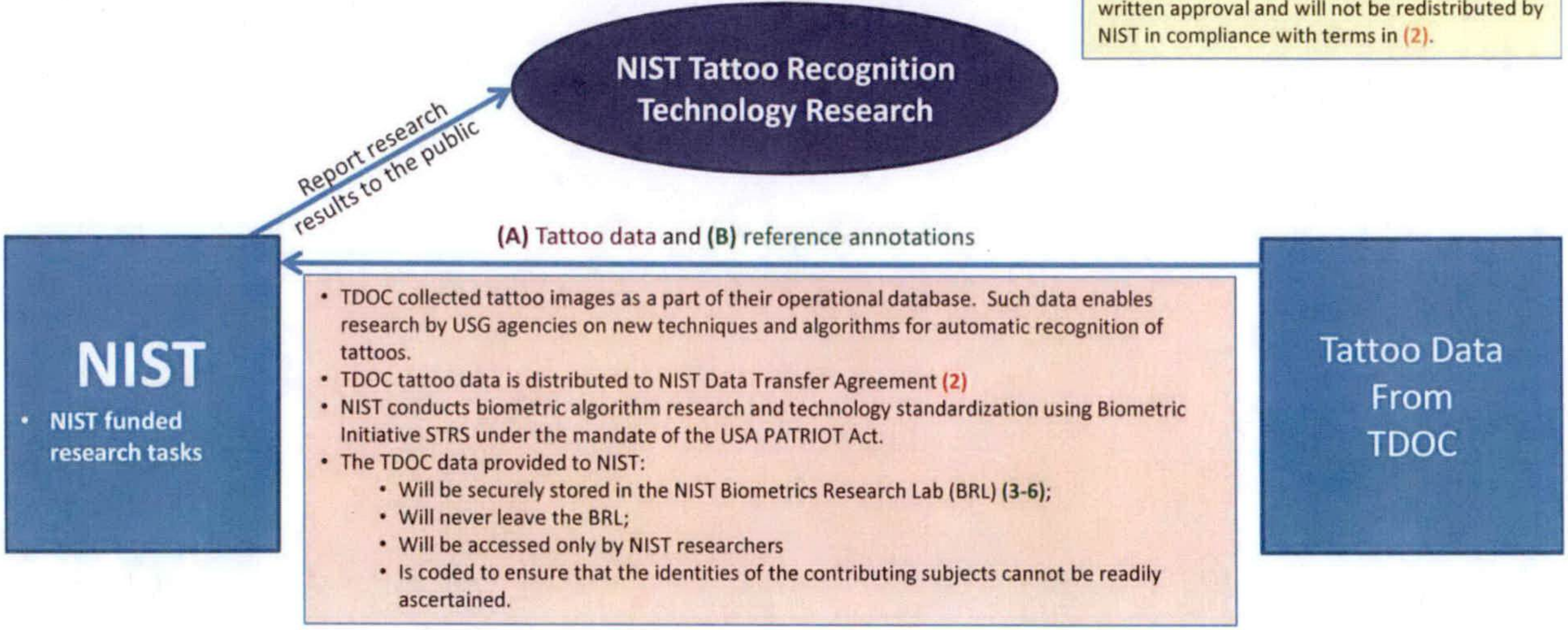
TDOC Tattoo Data Usage at NIST

NIST uses **(A)** and **(B)** to research biometric algorithms and develop standards that are supported by the data characteristics – in this case tattoo images.

NIST publishes research & best practices, and contributes actionable comments to standards bodies. Reports may go on the NIST web site and may be published in conference papers and journals. Tattoo data from this dataset will not be published in these reports without prior written approval and will not be redistributed by NIST in compliance with terms in (2).



NIST Tattoo Recognition Technology Research

Report research results to the public

(A) Tattoo data and **(B)** reference annotations

NIST

- **NIST funded research tasks**

Tattoo Data From TDOC

- TDOC collected tattoo images as a part of their operational database. Such data enables research by USG agencies on new techniques and algorithms for automatic recognition of tattoos.
- TDOC tattoo data is distributed to NIST Data Transfer Agreement **(2)**
- NIST conducts biometric algorithm research and technology standardization using Biometric Initiative STRS under the mandate of the USA PATRIOT Act.
- The TDOC data provided to NIST:
  - Will be securely stored in the NIST Biometrics Research Lab (BRL) **(3-6)**;
  - Will never leave the BRL;
  - Will be accessed only by NIST researchers
  - Is coded to ensure that the identities of the contributing subjects cannot be readily ascertained.

The **(B) reference annotations** only include gang affiliations the tattoos are associated with. The reference annotations do not include coded subject IDs or any information related to the subject. NIST will never receive subject identities. NIST uses **(B)** as algorithm inputs and answers.

Attachments provided in package:
(1) This Schematic of Tattoo Data Usage
(2) Data Transfer Agreement
(3-6) Biometric Research Lab (BRL) documentation

NIST research activities are on image and algorithm technology and automated algorithm development. No human data are in the algorithms nor collected by the algorithms.

ATTACHMENT 1

Attachment 3

BRL Biometric Repository Annotations

07/08/2011

A. Encounter Descriptors
   - Supplier Name
   - Supplier Transaction Type
   - Supplier-Coded Encounter ID
   - Collection Site
   - Collection Date
   - Collection Device ID
   - Collection Device Type
   - Data Quality Source (s)

B. Subject Descriptors
   - Supplier-Coded Subject ID*
   - Date of Birth
   - Country of Birth
   - Country of Citizenship
   - Gender
   - Race
   - Hair Color
   - Eye Color
   - Height
   - Weight
   - Occupation

C. Image Descriptors
   - Wearing Glasses?
   - Wearing Contacts?
   - Facial Expression
   - SMT Description
   - SMT Body Location
   - **Gang Affiliation (ITL-00xx)**

* Supplier encodes the data creating anonymous unique IDs; supplier maintains the code book; and the supplier never shares the code book with NIST.

ITL-00xx – contained in dataset for ITL-00xx, Tattoo Recognition Technology Research and Evaluations with Tennessee Department of Corrections (TDOC) collected tattoo images project

ATTACHMENT 4

Controls Applied to the NIST Biometrics Research Laboratory Prevent Readily Ascertained Identity

The Biometrics Research Laboratory (BRL) supports NIST biometrics research in standards development and technology evaluation. Essential to this research is a large and growing repository of biometric image samples including fingerprints, facial photos, and irises. These samples have associated characteristics useful for measurement science. (The list of annotation types in the repository is documented in [BRL-Anno].) A large portion of this data has been collected by other U.S. Government agencies as part of their normal operations; and therefore, the data was not originally collected for research purposes. In each case the organization (referred to hereon as the *supplier*) has determined the legal authority by which it is permitted to share its operational data with NIST. This data is treated as Controlled Unclassified Information (CUI), which is alternatively labeled by some suppliers as Sensitive But Unclassified (SBU). Therefore, protective controls have been implemented to lock down this data (both image samples and annotations) in the BRL, restricting access and use of the data, and preventing readily ascertained identity. The categories of controls applied are privately coded samples, restricted access, and training as described below.

The biometric samples are provided by the supplier to NIST as privately coded data using a generic unique identifier that does not convey the identity of the subject. These codes are created and assigned by the supplier. The supplier maintains the code book, and the code book is never shared with NIST.

The biometric data warehoused in the BRL is protected through logical access control (i.e., restricting access via electronic means such as over the network) and through physical access controls (i.e., restricting access via doors and locks). These controls are documented in the [BRL-SSP] System Security Plan (SSP) required by the NIST OCIO. (Note that the SSP references the "Verification Test Bed (VTB) Sub-System", which is more generally referred to here as the BRL.) In addition, the BRL goes through a continuous monitoring review yearly. The BRL passed its most recent (Assessment and Authorization) A&A on November 12, 2014.

Controls have been put in place to create a computer research laboratory (the BRL) on a certified and accredited private network. As stated in [SSP 1.4 a] routers running firewalls separate the BRL from the NIST domain and restrict access from the NIST Network. Controls for logical access are documented in detail in [SSP 2.1] and summarized as follows. The BRL firewall restricts access to the BRL via packet filtering and machine lists with explicit access. All unnecessary ports have been closed and unnecessary services have been disabled. No CUI data is permitted outside of the BRL. General users of the BRL are issued individual accounts that do not have system administrator privileges; users must authenticate when logging into the BRL [SSP 2.7], and BRL accounts are logged for audit and accountability purposes [SSP 2.3]. These controls restrict login access to the BRL; they restrict users from exporting CUI data out of the BRL; and they restrict internet access and database search once logged into the BRL.

The BRL is also physically locked down as documented in [SSP 2.11]. Doors to the BRL are kept locked and remain closed. BRL doors are fitted with locks activated by a registered PIV card and pin number. A limited list of BRL users (authorized to have physical access into the BRL) is managed and maintained by the NIST Office of Security. Each attempt to physically access the BRL is logged for audit and accountability purposes. In case of emergency, the BRL doors are also secured with a conventional keyed lock. The locks are all keyed alike and can be opened only with a specific BRL key. A very restricted list of NIST staff designated as BRL emergency personnel possess this key, one key is on file with NIST Police, and another key is on file with NIST Fire & Life Safety. NIST janitorial services do not possess a key and are restricted from BRL access. The BRL doors are wired such that if the BRL is accessed by any means other than by PIV card and pin number (e.g., accessed via BRL key), then NIST Police will receive an automated alarm and will dispatch an officer to the BRL.

Orientation and training is given to each BRL user. (The objectives of the training are covered in the BRL User Agreement [BRL-Users].) The user is informed of the CUI nature of the warehoused data; the requirement that no CUI data is permitted outside of the BRL and that no attempt should be made to ascertain the identity of any subject in the CUI biometric data repository; and the risk of harm if the confidentiality, integrity, or availability of the CUI data were to be compromised [SSP 1.7]. In the rare and unlikely event that a BRL user does recognize the identity of a subject in the biometric data repository (for example, a subject is recognized from their facial photo on file), the BRL user is instructed to maintain confidentiality and not disclose to anyone the knowledge that the specific individual is included in the repository. Upon training, the BRL user must read and sign the User Agreement; they receive a copy of the agreement for their own reference; and a copy is kept on file.

ATTACHMENT 6

The BRL user agreement specifies rules for using and maintaining BRL assets. The BRL includes all systems on the private network contained in 225/B45, 225/B63, 222/B251 and 222/B247. The BRL does not include other Image Group systems for example the 129.6.61.??? subnet.

The BRL (Biometric Research Lab, previously referred to as VTB – Verification Test Bed) supports NIST biometrics research in standards development and technology evaluation. Essential to this research is a large and growing repository of biometric image samples including fingerprints, facial photos, and irises. The BRL uses CUI (Controlled Unclassified Information, previously referred to as SBU - Sensitive But Unclassified) data for biometrics research and technical evaluations. It is important to remind all Image Group staff about the importance of protecting this biometric data as well as the Software Development Kits (SDKs) submitted to each biometric evaluation performed in the BRL. While this data is not classified, there is a significant risk of harm if the confidentiality, integrity, or availability of the CUI data or SDKs were to be compromised. CUI data or SDK compromise could result in a serious adverse effect on BRL operations, for example loss of NIST reputation or customer trust, loss of confidence in data, or loss of external funding.

While all Image Group computer users are bound by the NIST computer user policies and directives http://inet.nist.gov/oism/directives and specifically, https://inet.nist.gov/oism/directives/iss_aup, there are additional requirements for those with BRL access both physical and computer account. Physical access is by NIST PIV card and pin. Video cameras are used to record activity inside the BRL. Computer access to the BRL is made through "gateway" systems ("vtba" and "vtbb"). Please take a few moments to review each of these items. Item five is a requirement mainly related to the use of facial images but applies to all biometric data.

1) The SSP (System Security Plan) states that "No CUI data is permitted outside of the BRL."
2) No SDKs should be unencrypted outside the BRL. Evaluation procedures must require that SDKs be encrypted by the participant before sending to NIST and any unencrypted SDK should be rejected for participation and immediately deleted.
3) Only NIST employees will have access to participant's SDK software.
4) BRL systems are for biometrics research and technical evaluations work only. Firewalls are configured to only allow incoming ssh connections. No email or internet access is allowed from inside the BRL.
5) BRL users should make no attempt to ascertain the identity of any subject in the CUI biometric data repository. In the rare and unlikely event that a BRL user does recognize the identity of subject in the CUI biometric data repository (for example, a subject is recognized from their facial photo on file), the BRL user is instructed to maintain confidentiality and not disclose to anyone the knowledge that the specific individual is included in the repository. They should let their supervisor know that the incident occurred without disclosing the identity of the individual.

Thanks for everyone's continued cooperation in protecting the CUI biometric data repository and SDKs contained in the BRL. By signing this form you agree to comply with the requirements for BRL physical and computer access. Any exceptions must be approved in writing. Any violations should be reported immediately to your supervisor.

BRL User:______________________________

Signature:______________________________ Date:__________
Annual Refresh: Initials:____________ Date:__________
Annual Refresh: Initials:____________ Date:__________
Annual Refresh: Initials:____________ Date:__________

Associate Investigators and Team Members (Image Group, IAD, ITL)

04/04/2016

Craig Watson
Patrick Grother
Mei Ngan
Kayee Kwong
Pat Flanagan
Karen Marshall
George Quinn
James Matey
Elham Tabassi
John Libert
Bruce Bandini
Frederick Byers
John Grantham
Kenneth Ko
Stephen Wood
Jin Chu Wu
Michael Garris
Jonathon Phillips
Amy Yates
Kevin Mangold
Brian Cochran
Greg Fiumara
Stanley Janet
Wayne Salamon

ITL-16-0018

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Name	Mei Ngan
Title	Computer Scientist
Building/Office Phone/Email	225/A210 301-975-5274/mei@nist.gov
OU Division Group	Information Technology Laboratory (ITL) Information Access Division (IAD) Image Group (774.03)
Group Leader	Craig Watson

The associate investigators and team members are all Federal employees within group 774.03 who have taken Human Subjects Research Awareness Training specified/approved by the NIST Human Subjects Protection Office. This protocol will be amended if researchers or team members outside that group are needed.

2. Type of Work (check one or both and indicate location, if applicable)

x	NIST work
	Collaborative work Name(s) of Collaborator: Location(s) of Collaborator(s):
	Funding from NIST: Contract/Grant Recipient Institution(non-NIST): Contract/Grant #: Title of Contract/Grant: Location(s) where work will be performed:
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3. **Title(s) of Proposed Work:**
   - **Title of this project:** Biometric Technology Evaluation and Standards Development Research - Using Tattoo Data Operationally Collected Outside NIST
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   - Goals/Objectives of the work:

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  See the NIST Tattoo Recognition Technology Research schematic – ATTACHMENT 1.

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Not applicable

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The PI certifies on behalf of self, spouse, registered domestic partner, and dependent children, **as well as on behalf of all investigators** and their spouses, registered domestic partners, and dependent children. "Investigator" means anyone with responsibility for the design, conduct, or reporting of the research.

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Do you, your spouse, dependent children or household members have any direct, indirect, or related financial interest(s) related to the work to be conducted as part of this proposed project? Interests are related to the research if those interests:

- could be affected by the results or outcome of the research,
- are in the sponsor of the research (even if unrelated to the research being proposed), or
- are in another entity conducting research or business that could be affected by the research.

☒ **No**

□ **Yes** – Please identify investigator and describe conflict on separate page.

INVESTIGATORS (others who have responsibility for design, conduct, or reporting of the research)

Do any other Investigators, their spouses, dependent children or household members have any direct, indirect, or related financial interest(s) related to the work to be conducted as part of this proposed project? Interests are related to the research if those interests:

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PRINCIPAL INVESTIGATOR

Signature: Date: 3/15/2016

Typed Name: Mei Ngan, Computer Scientist, Image Group

I hereby certify that this research activity has been assessed for scientific merit, anticipated contribution to the field, and feasibility. This assessment evaluated the qualifications of the research team, the scientific question, and appropriateness of the methods planned to answer the scientific question and to justify the inclusion of human subjects in research.

OU APPROVAL AUTHORITY (add additional signature blocks as required by OU policy for approving research)

Group Leader Review:

Signature: Craig Wat Date: 3/21/2016

Type Name: Craig Watson, Acting Group Leader, Image Group

Division Chief Review:

Signature: Date: 3/24/16

Typed Name: Shahram Orandi, Chief, Information Access Division (IAD)

OU Laboratory Official Review:

Signature: Charles H. Romine Date: 29 Mar 2016

Typed Name: Charles H. Romine, Director, Information Technology Laboratory (ITL)

ATTACHMENTS:

1 - Schematic Tattoo Data Usage

2 – Data Transfer Agreement

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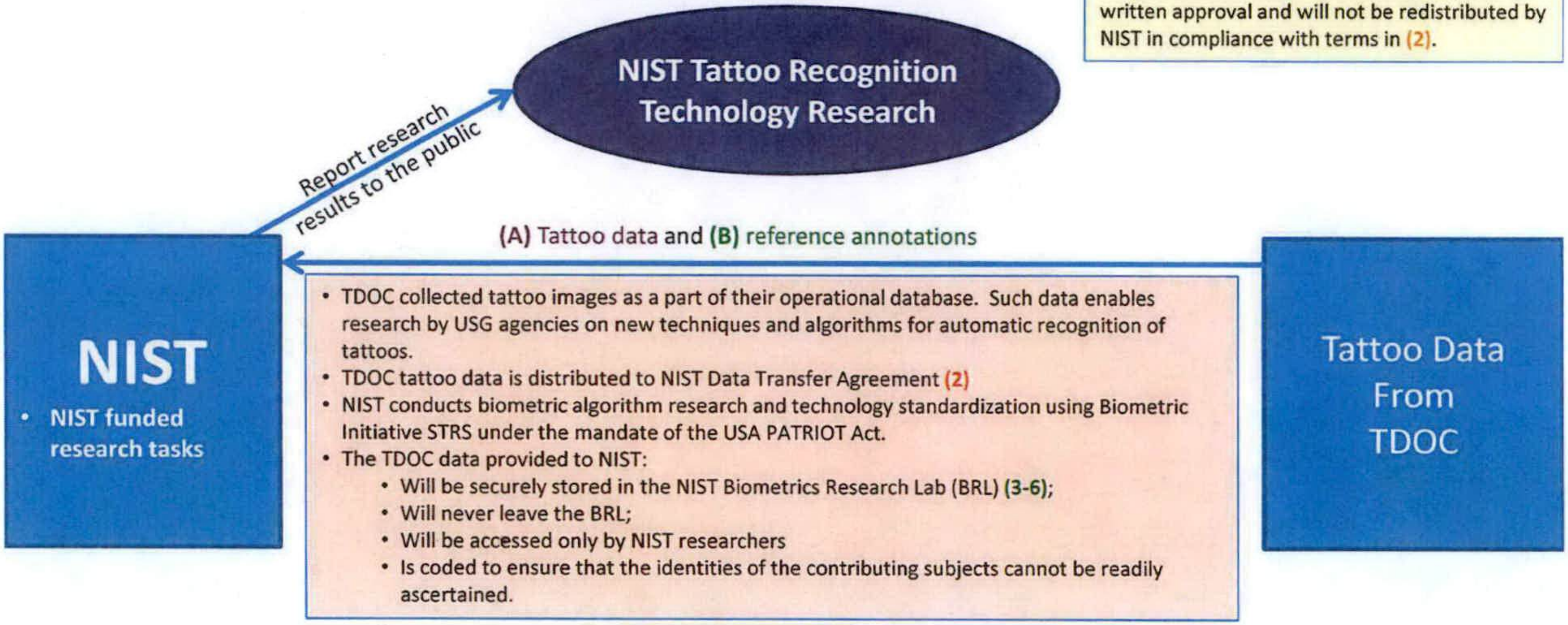
TDOC Tattoo Data Usage at NIST

NIST uses (A) and (B) to research biometric algorithms and develop standards that are supported by the data characteristics – in this case tattoo images.

NIST publishes research & best practices, and contributes actionable comments to standards bodies. Reports may go on the NIST web site and may be published in conference papers and journals. Tattoo data from this dataset will not be published in these reports without prior written approval and will not be redistributed by NIST in compliance with terms in (2).



NIST Tattoo Recognition Technology Research
Report research results to the public
(A) Tattoo data and (B) reference annotations
NIST
NIST funded research tasks
Tattoo Data From TDOC

- TDOC collected tattoo images as a part of their operational database. Such data enables research by USG agencies on new techniques and algorithms for automatic recognition of tattoos.
- TDOC tattoo data is distributed to NIST Data Transfer Agreement (2)
- NIST conducts biometric algorithm research and technology standardization using Biometric Initiative STRS under the mandate of the USA PATRIOT Act.
- The TDOC data provided to NIST:
  - Will be securely stored in the NIST Biometrics Research Lab (BRL) (3-6);
  - Will never leave the BRL;
  - Will be accessed only by NIST researchers
  - Is coded to ensure that the identities of the contributing subjects cannot be readily ascertained.

The (B) reference annotations only include gang affiliations the tattoos are associated with. The reference annotations do not include coded subject IDs or any information related to the subject. NIST will never receive subject identities. NIST uses (B) as algorithm inputs and answers.

Attachments provided in package:
(1) This Schematic of Tattoo Data Usage
(2) Data Transfer Agreement
(3-6) Biometric Research Lab (BRL) documentation

NIST research activities are on image and algorithm technology and automated algorithm development. No human data are in the algorithms nor collected by the algorithms.

ATTACHMENT 1

Attachment 3

BRL Biometric Repository Annotations

07/08/2011

A. Encounter Descriptors
   - Supplier Name
   - Supplier Transaction Type
   - Supplier-Coded Encounter ID
   - Collection Site
   - Collection Date
   - Collection Device ID
   - Collection Device Type
   - Data Quality Source (s)

B. Subject Descriptors
   - Supplier-Coded Subject ID*
   - Date of Birth
   - Country of Birth
   - Country of Citizenship
   - Gender
   - Race
   - Hair Color
   - Eye Color
   - Height
   - Weight
   - Occupation

C. Image Descriptors
   - Wearing Glasses?
   - Wearing Contacts?
   - Facial Expression
   - SMT Description
   - SMT Body Location
   - **Gang Affiliation (ITL-00xx)**

* Supplier encodes the data creating anonymous unique IDs; supplier maintains the code book; and the supplier never shares the code book with NIST.

ITL-00xx – contained in dataset for ITL-00xx, Tattoo Recognition Technology Research and Evaluations with Tennessee Department of Corrections (TDOC) collected tattoo images project

ATTACHMENT 4

Controls Applied to the NIST Biometrics Research Laboratory Prevent Readily Ascertained Identity

The Biometrics Research Laboratory (BRL) supports NIST biometrics research in standards development and technology evaluation. Essential to this research is a large and growing repository of biometric image samples including fingerprints, facial photos, and irises. These samples have associated characteristics useful for measurement science. (The list of annotation types in the repository is documented in [BRL-Anno].) A large portion of this data has been collected by other U.S. Government agencies as part of their normal operations; and therefore, the data was not originally collected for research purposes. In each case the organization (referred to hereon as the *supplier*) has determined the legal authority by which it is permitted to share its operational data with NIST. This data is treated as Controlled Unclassified Information (CUI), which is alternatively labeled by some suppliers as Sensitive But Unclassified (SBU). Therefore, protective controls have been implemented to lock down this data (both image samples and annotations) in the BRL, restricting access and use of the data, and preventing readily ascertained identity. The categories of controls applied are privately coded samples, restricted access, and training as described below.

The biometric samples are provided by the supplier to NIST as privately coded data using a generic unique identifier that does not convey the identity of the subject. These codes are created and assigned by the supplier. The supplier maintains the code book, and the code book is never shared with NIST.

The biometric data warehoused in the BRL is protected through logical access control (i.e., restricting access via electronic means such as over the network) and through physical access controls (i.e., restricting access via doors and locks). These controls are documented in the [BRL-SSP] System Security Plan (SSP) required by the NIST OCIO. (Note that the SSP references the "Verification Test Bed (VTB) Sub-System", which is more generally referred to here as the BRL.) In addition, the BRL goes through a continuous monitoring review yearly. The BRL passed its most recent (Assessment and Authorization) A&A on November 12, 2014.

Controls have been put in place to create a computer research laboratory (the BRL) on a certified and accredited private network. As stated in [SSP 1.4 a] routers running firewalls separate the BRL from the NIST domain and restrict access from the NIST Network. Controls for logical access are documented in detail in [SSP 2.1] and summarized as follows. The BRL firewall restricts access to the BRL via packet filtering and machine lists with explicit access. All unnecessary ports have been closed and unnecessary services have been disabled. No CUI data is permitted outside of the BRL. General users of the BRL are issued individual accounts that do not have system administrator privileges; users must authenticate when logging into the BRL [SSP 2.7], and BRL accounts are logged for audit and accountability purposes [SSP 2.3]. These controls restrict login access to the BRL; they restrict users from exporting CUI data out of the BRL; and they restrict internet access and database search once logged into the BRL.

The BRL is also physically locked down as documented in [SSP 2.11]. Doors to the BRL are kept locked and remain closed. BRL doors are fitted with locks activated by a registered PIV card and pin number. A limited list of BRL users (authorized to have physical access into the BRL) is managed and maintained by the NIST Office of Security. Each attempt to physically access the BRL is logged for audit and accountability purposes. In case of emergency, the BRL doors are also secured with a conventional keyed lock. The locks are all keyed alike and can be opened only with a specific BRL key. A very restricted list of NIST staff designated as BRL emergency personnel possess this key, one key is on file with NIST Police, and another key is on file with NIST Fire & Life Safety. NIST janitorial services do not possess a key and are restricted from BRL access. The BRL doors are wired such that if the BRL is accessed by any means other than by PIV card and pin number (e.g., accessed via BRL key), then NIST Police will receive an automated alarm and will dispatch an officer to the BRL.

Orientation and training is given to each BRL user. (The objectives of the training are covered in the BRL User Agreement [BRL-Users].) The user is informed of the CUI nature of the warehoused data; the requirement that no CUI data is permitted outside of the BRL and that no attempt should be made to ascertain the identity of any subject in the CUI biometric data repository; and the risk of harm if the confidentiality, integrity, or availability of the CUI data were to be compromised [SSP 1.7]. In the rare and unlikely event that a BRL user does recognize the identity of a subject in the biometric data repository (for example, a subject is recognized from their facial photo on file), the BRL user is instructed to maintain confidentiality and not disclose to anyone the knowledge that the specific individual is included in the repository. Upon training, the BRL user must read and sign the User Agreement; they receive a copy of the agreement for their own reference; and a copy is kept on file.

ATTACHMENT 6

The BRL user agreement specifies rules for using and maintaining BRL assets. The BRL includes all systems on the private network contained in 225/B45, 225/B63, 222/B251 and 222/B247. The BRL does not include other Image Group systems for example the 129.6.61.??? subnet.

The BRL (Biometric Research Lab, previously referred to as VTB – Verification Test Bed) supports NIST biometrics research in standards development and technology evaluation. Essential to this research is a large and growing repository of biometric image samples including fingerprints, facial photos, and irises. The BRL uses CUI (Controlled Unclassified Information, previously referred to as SBU - Sensitive But Unclassified) data for biometrics research and technical evaluations. It is important to remind all Image Group staff about the importance of protecting this biometric data as well as the Software Development Kits (SDKs) submitted to each biometric evaluation performed in the BRL. While this data is not classified, there is a significant risk of harm if the confidentiality, integrity, or availability of the CUI data or SDKs were to be compromised. CUI data or SDK compromise could result in a serious adverse effect on BRL operations, for example loss of NIST reputation or customer trust, loss of confidence in data, or loss of external funding.

While all Image Group computer users are bound by the NIST computer user policies and directives http://inet.nist.gov/oism/directives and specifically, https://inet.nist.gov/oism/directives/iss_aup, there are additional requirements for those with BRL access both physical and computer account. Physical access is by NIST PIV card and pin. Video cameras are used to record activity inside the BRL. Computer access to the BRL is made through "gateway" systems ("vtba" and "vtbb"). Please take a few moments to review each of these items. Item five is a requirement mainly related to the use of facial images but applies to all biometric data.

1) The SSP (System Security Plan) states that "No CUI data is permitted outside of the BRL."
2) No SDKs should be unencrypted outside the BRL. Evaluation procedures must require that SDKs be encrypted by the participant before sending to NIST and any unencrypted SDK should be rejected for participation and immediately deleted.
3) Only NIST employees will have access to participant's SDK software.
4) BRL systems are for biometrics research and technical evaluations work only. Firewalls are configured to only allow incoming ssh connections. No email or internet access is allowed from inside the BRL.
5) BRL users should make no attempt to ascertain the identity of any subject in the CUI biometric data repository. In the rare and unlikely event that a BRL user does recognize the identity of subject in the CUI biometric data repository (for example, a subject is recognized from their facial photo on file), the BRL user is instructed to maintain confidentiality and not disclose to anyone the knowledge that the specific individual is included in the repository. They should let their supervisor know that the incident occurred without disclosing the identity of the individual.

Thanks for everyone's continued cooperation in protecting the CUI biometric data repository and SDKs contained in the BRL. By signing this form you agree to comply with the requirements for BRL physical and computer access. Any exceptions must be approved in writing. Any violations should be reported immediately to your supervisor.

BRL User:______________________________

Signature:______________________________ Date:__________

Annual Refresh: Initials:___________ Date:__________

Annual Refresh: Initials:___________ Date:__________

Annual Refresh: Initials:___________ Date:__________