23 November 2016

MEMORANDUM FOR AFIT EXEMPT DETERMINATION OFFICIAL

FROM: AFIT/ENG

2950 Hobson Way

Wright Patterson AFB OH 45433‐7765

SUBJECT: Request for exemption from human experimentation requirements (32 CFR 219, DoDD 3216.2 and AFI 40-402) for Controller Area Network (CAN) data collection

1. The purpose of this study is to determine whether statistical analysis and machine learning concepts can successfully differentiate between vehicles and/or operators using Controller Area Network (CAN) traffic generated from passenger vehicles. Collected CAN data from volunteers operating their vehicles will not be attributable back to the operator. Attributable data such as GPS locations or vehicle identification number (VIN) will be deliberately searched for and deleted from the data files.

2. This request is based on the Code of Federal Regulations, title 32, part 219, section 101, paragraph (b) (2) Research activities that involve the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior unless: (i) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) Any disclosure of the human subjects’ responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects’ financial standing, employability, or reputation.

3. The following information is provided to show cause for such an exemption:

1. Equipment and facilities: A data collection system will be connected directly to the vehicle’s On-Board Diagnostics (OBD-II) port to receive CAN traffic. This system will be in a ‘receive-only’ mode and not capable of affecting the vehicle or driver in any way.
2. Subjects:

* Source of subjects – Volunteers from among AFIT personnel.
* Total number of subjects – We expect approximately 40 different makes and models of cars in the study. The number of human participants will likely be slightly less as some volunteers may provide access to and operate multiple vehicles.
* Inclusion/exclusion criteria: Drivers with model year vehicles 2008 and later will be included in the study. Vehicles manufactured prior to 2008 were not required to include the OBD-II connection or operate using the CAN protocol.
* Age range: Participation will be limited to adults (18 years old or older) with a valid driver’s license, registration, insurance, and authorization to operate a motor vehicle in and around WPAFB.

1. Timeframe: December 2016 – July 2017
2. Data collected: Drivers will be asked to operate their motor vehicles normally to include engaging various modes of the drivetrain (Park, Neutral, Drive, Reverse, Etc.) and activate internal features (Windows, Locks, Wipers, Etc.) for a sufficient period of time to capture the resulting CAN traffic. No demographic data will be collected about subjects operating the vehicles. Operators will be assigned a study ID for purposes of differentiating between operators. Generic vehicle make, model, model year, and trim line will be recorded. VIN numbers and GPS coordinates may exist in CAN traffic. Collected data will be deliberately searched for such personally identifiable information which will be deleted.
3. Risks to Subjects: Participants will be subjected to all risks typically associated with operating a motor vehicle. These risks will be mitigated by ensuring all participants possess a valid driver’s license, registration, and insurance. Seat belts will be used by everyone in the vehicle.
4. Informed consent: All subjects and their vehicles are self-selected to volunteer to participate in the collection process. No adverse action is taken against those who choose not to participate. Subjects are made aware of the nature and purpose of the research, sponsors of the research, and disposition of the survey results. A copy of the Privacy Act Statement of 1974 is presented for their review.

4. If you have any questions about this request, please contact Dr. Scott Graham (principal investigator) at (937) 255-3636, ext. 4581; E-mail - Scott.Graham@afit.edu.

Scott Graham

Principal Investigator