ResearchMaster

Human Ethics Application

Application ID :	HRE20-184
Application Title :	Human Depression Analysis - An Experimental Study of the Use of AI Botics for Early Detection
Date of Submission :	07/10/2020
Primary Investigator :	DR KHANDAKAR AHMED (Chief Investigator)
Other Personnel :	PROF YUAN MIAO (Associate Investigator)
	DR AYMAN IBAIDA (Associate Investigator)
	MR Payam KAYWAN (Student)

Introduction

Important Information

Form Version: V.16-02. Last Updated: 6.7.2016.

IMPORTANT INFORMATION FOR ALL APPLICANTS:

- Applicants are advised to follow the guidelines provided on the **Human Research Ethics website** prior to submitting this application.
- Ensure all questions are appropriately answered in plain language with correct spelling and grammar.
- All applications must be sighted and approved by all members of the research team and any relevant parties. Applications will not be reviewed without appropriate authorisation.
- To avoid unnecessary delays, please ensure application is submitted in full by the submission deadline for the relevant HREC.

You are reminded that your project may not commence without formal written approval from the appropriate Human Research Ethics Committee.

Contact:

Ethics Secretary
For help and further information regarding ethical conduct, refer to the Human Research Ethics website: *http://research.vu.edu.au/hrec.php* or contact the Secretary for the Human Research Ethics Committee, Office for Research.
Phone: 9919 4781 or 9919 4461
Email: researchethics@vu.edu.au

Quest Service Desk
For technical help, refer to the Quest website: *http://research.vu.edu.au/quest.php* or contact a member of the Quest team.
Phone: 9919 4278
Email: quest.servicedesk@vu.edu.au

External Resources

- NHMRC: National Statement on Ethical Conduct in Human Research
- NHMRC: Human Research Ethics Handbook
- NHMRC: Australian Code for the Responsible Conduct of Research

Quest Guide

Quick Tips for Using Quest

Need Help? For help and instructions, we strongly recommend that you download the full Quest Online Ethics Guide (.pdf). Your questions may also be answered in the FAQ page on the Quest Website.

- **Answer All Questions**:
  Most questions are mandatory and must be completed before the application can be submitted. These questions are marked with a red asterisk (*)
- **Access Help and Tips**:
  The help icon, found next to questions and at the top of each page, will provide you with detailed advice on ethical content.
- **Remember to Save**:
  Use the floppy disk icon (and the green tick in some sections) regularly to avoid losing any answers. Each page will save automatically when you click *Next* or *Back*.
- **Print or Save a Copy of Your Application**:
  You can use the report icon at any stage to generate a printer friendly version of the form. Select HTML to print to screen. To save as a .pdf file to your computer select PDF then save a copy from the pop up screen. *(Don't forget to save a copy before you submit!)*
- **Submit Application**:
  When you have completed your application, click on the *Action* tab in the left-hand column and click *Submit Application*. The system will then convert the form to read-only and send it to the Ethics Secretary for review.
  You will receive an email confirmation at submission. Double check that your application has been submitted by viewing the application status in the *My Applications* page.

Responding to comments (if your application is returned)

There may be stages throughout the application process in which the Ethics Secretary will instruct you to amend your application form. These amendments will be communicated to you via 'Comments' within the eForm.

1. **Generate a List of All Comments**:
   Click the report icon, select *Comments Report* from the Document drop-down field and click *OK*. This list will show all comments created in your application and which page they are applicable to. Click *Cancel* to return to the application form.
2. **Revise your Answers**:
   Open the page which shows a red flag; these denote an Action Comment which you are required to respond to. Revise the relevant question(s) in your application form as required. Remember to click save!
3. **Respond to Action Comments**:
   AFTER you have revised your answers, you must provide a response to each Action Comment explaining to the Committee how you have addressed their communication. Open the Page Comments window and click New Comment to enter your response into the textbox. Click the green tick to save your text.
4. **Mark Comments as Responded**:
   Once you have revised your answers AND finished responding to all comments, reopen Page Comments window, use the checkbox to select the *Action Comments* and click *Mark Selected Comments as Responded*. The colour of the flag will change to yellow and the page will become Read Only.
   Important: *DO NOT mark the comments as 'Responded' until you are completely satisfied with your revised answers - you will lose access to edit the page and the comments.*
5. **Submit Revised Application**:
   Once you have addressed all of the Red Flags, open the *Action* tab and click *Submit Revised Application*. The system will then send the form to the Ethics Secretary for review. Remember to save a copy of your application by clicking the Report icon and generating a PDF or printer-friendly version.

[Office Use Only - Administration]

Application ID - *Assign HRE # using "Manage Applications"*

HRE20-184

Clearance Purpose

Research

For Review:

Assigned Ethics Committee

Low Risk Review Panel

Risk Level *(Enter 'High' or 'Low' or 'Neg')*

Low

Students involved in conduct of project? *(Enter 'Yes' or 'No')*

Yes

Date Accepted by Ethics Secretary

08/10/2020

For Finalisation:

Date Approved

11/12/2020

Approved Start Date for Project

11/12/2020

Approved End Date for Project

11/12/2022

Date Rejected

This question is not answered.

Date Withdrawn

This question is not answered.

Application Process Comments

This question is not answered.

[Office Use Only - Risk Assessment]

NEGLIGIBLE RISK INDICATORS
Applicant has responded YES to:

4.5. Does the research only include the collection of anonymous and non-sensitive data (e.g. online survey, observational data) that poses no foreseeable risks or discomfort to participants? *Any foreseeable risk must be no more than inconvenience.*

HIGH RISK INDICATORS
Applicant has responded YES to:

3.3.e. Does the research involve limited disclosure of information to participants?

POSSIBLE HIGH RISK INDICATORS
Applicant has responded YES to:

LOW RISK INDICATOR
If no statements appear under the headings above, the applicant has not responded yes to any negligible or high risk indicators.

SECTION 1 - PROJECT OVERVIEW

General Details

1.1. **Ethics Category***

Human

1.2. **Project Title***

Human Depression Analysis - An Experimental Study of the Use of AI Botics for Early Detection

1.3. **Project Summary** (Include brief details of aims, methods and significance of the project in plain language. Maximum of 2000 characters)*

This study aims to develop an AI Bot that can assist in mass screening for early detection of human depression level. A chatbot based on the standard interview guideline is to be developed that can impersonate a psychiatrist. The developed chatbot will act as an interface and will be used to interview a range of people and record their conversation. The study aims to apply Information Extraction (IE) technique of Natural Language Processing (NLP) on the recorded conversation to estimate the depression level of a person. We aim to validate our result by medical specialists by sending the de-identified recorded conversation to them. The aim of this study is not to replace any existing practice but to assist health care providers in taking benefit from this research in various ways such as triage process enhancement, medical symptoms identification and treatment plans improvement.

1.4. **Primary College or Institute for Application***

INST OF SUSTAINABLE INDUSTRIES & LIVEABLE CITIES

Timeline and Funding

1.5. **Period for which ethical approval is sought.** *Note: ethical approval is automatically granted for a period of 2 years from the project commencement date.*
Project commencement date:*

- (●) Immediately upon receiving ethical approval
- ( ) Other date

1.6. **Date the data collection is expected to be completed:***

30/06/2021

1.7. **How will the research be funded?***

- [ ] External grant
- [ ] VU grant or funding
- [ ] Sponsor
- [ ] Other
- [x] Unfunded

If the research is unfunded, indicate how the project can proceed.*

The Master by Research student received RTP stipend to continue his study. IT discipline of CoES has all the necessary computing and human resources to support the student.

1.8. **Is the research a collaborative effort with another organisation?***

- ( ) Yes
- (●) No

SECTION 2 - PROJECT INVESTIGATORS

Investigators

2.1. **Please list all investigators associated with this project.**
The research team is the group of investigators accountable for the conduct of the project. Include details of the Primary Chief Investigator (primary contact for application), as well as all other Chief Investigators and Associate Investigators. *Student details will be requested separately.* Other staff (e.g. technicians) may perform tasks within the project although they are not necessarily investigators. They should be listed as "Other Staff" if appropriate.*

1	ID	E5020390
	Surname	MIAO
	Given Name	YUAN
	Full Name	PROF YUAN MIAO
	College	OFFICE OF THE DEAN (COLLEGE OF ENGINEERING & SCI)
	Email	Yuan.Miao@vu.edu.au
	Role	Associate Investigator
	Phone	03 9919 4605
	Mobile	0432340435
	Qualifications	Extensive research experience in Machine Learning, Cyber Security, Image Processing and Fuzzy Logic. Currently conducting comprehensive research on the use of Chat Bot technology
2	ID	E5111613
	Surname	IBAIDA
	Given Name	AYMAN
	Full Name	DR AYMAN IBAIDA
	College	OFFICE OF THE DEAN (COLLEGE OF ENGINEERING & SCI)
	Email	Ayman.Ibaida@vu.edu.au
	Role	Associate Investigator
	Phone	0399195136
	Mobile	0403709542
	Qualifications	PhD in Cyber Security, Working on Sentiment and Emotion Analysis based on audio and text conversation.
3	ID	E5109078
	Surname	AHMED
	Given Name	KHANDAKAR
	Full Name	DR KHANDAKAR AHMED
	College	COES-INFORMATION TECHNOLOGY
	Email	Khandakar.Ahmed@vu.edu.au
	Role	Chief Investigator
	Primary CI	Yes
	Phone	03 9919 6312
	Mobile	0426 240 101
	Qualifications	PhD in IoT, Working on Machine Learning, Sentiment and Emotion Analysis based on audio and text conversation.

Note: Please click the Question Help icon above for instructions on how to search for personnel and use this table.
Once an Investigator record has been added, click on the name in the table above to open the record and edit the information required.

If you are unable to find a personnel record in this system which must be added to your application, please use the Request to Add Personnel to Research Database form found on the Quest website.

For requests to add external personnel, please use the Request to Add External Personnel to Research Database form.

Student Investigators

2.2. **Will any students be involved in the conduct of this project?***

- (●) Yes
- ( ) No

2.2.a. **If YES, is the project:***

- (●) A STUDENT PROJECT for the degree in which the student is enrolled?
- ( ) A STAFF PROJECT that involves a student(s) undertaking some part of the project?
- ( ) Other

2.2.a.i. **If the research is a STUDENT PROJECT, at what level?***

Masters by Research

* Has this project been approved by the Postgraduate Research Committee? (ie. during confirmation of candidature process)*

◉ Yes
○ No

2.2.b. **Please list all student investigators involved in this project.**
*Ensure the primary supervisor (not the student), has been marked as the Chief Investigator and primary contact for the application in Q.2.1.**

1	ID	S4643196
	Surname	KAYWAN
	Given Name	Payam
	Full Name	MR Payam KAYWAN
	College	INST OF SUSTAINABLE INDUSTRIES & LIVEABLE CITIES
	Email	payam.kaywan@live.vu.edu.au
	Role	Student
	Phone	N/A
	Mobile	0490853983
	Qualifications	All three supervisors are working or have direct expertise on the area the student is working. All three supervisors are also directly involved in every step of this research to mitigate or minimize risk. The involvement starts from building the chat both, conducting the interview, build the model and evaluate. During the interview process, each interview will be examined with due diligence to maintain the ethical bindings and data privacy.

Note: Please click the Question Help icon above for instructions on how to search for personnel and use this table.
Once a student's record has been added, click on the name in the table above to open the record and edit the information required.

If you are unable to find a personnel record in this system which must be added to your application, please use the Request to Add Personnel to Research Database form found on the Quest website.

2.2.c. **What arrangements are in place for the supervision of student(s) when undertaking project activities?***

All three supervisors are working or have direct expertise on the area the student is working. All three supervisors are also directly involved in every step of this research to mitigate or minimize risk. The involvement starts from building the chat both, conducting the interview, build the model and evaluate. During the interview process, each interview will be examined with due diligence to maintain the ethical bindings and data privacy.

Involvement of Other Individuals/Organisations

2.3. **Will any individuals who are not members of the research team be involved in the conduct of this project?** (e.g., medical personnel involved in procedures, research contractors, teachers) *

◉ Yes
○ No

If other individuals who are not members of the research team are involved you must;

- Document the nature of their involvement
- Describe the processes that have been put in place to protect the confidentiality of participants and data. For example, the individual may be required to sign a confidentiality agreement. In this case a copy of the agreement should be attached to the Ethics Application.
- Provide details of any professional indemnity insurance held by the individual to protect against potential liabilities associated with their involvement in the research.

If the project is a collaborative effort with another organisation, the researcher must give details of any formal or informal agreements or contract. Arrangements with external organisations raise a number of issues including:

1. Which organisation owns the intellectual property
2. What data will the external organisation have access to and how will the security of the data and participants' confidentiality be ensured
3. Can the external organisation unduly influence the conduct of the research
4. Can the external organisation suppress the findings if they are unfavourable *[Refer Conflicts of Interest in Research, p3]*

You should also indicate whether approval is required from any other organisations involved. If so the process for gaining approval should be described and a copy of this approval must be attached to the Ethics Application.

If YES, provide details of their involvement and procedures in place to protect confidentiality of participants and data.*

For evaluation of the system the de-identified recorded conversation will be presented to the medical specialist. They will independently rate the level of depression based on the recorded conversation that will be compared against the outcome of our system for accuracy.

If YES, provide details of any professional indemnity insurance held by those individuals to protect against potential liabilities associated with their involvement in the research.*

This has not been determined yet.

SECTION 3 - NATURE OF THE PROJECT

Type of Project

3.1.a. **Is the project a pilot study?***
- (•) Yes
- ( ) No

3.1.b. **Is the project a part of a larger study?***
- ( ) Yes
- (•) No

3.1.c. **Is the project a quality assurance or evaluation project (e.g., related to teaching, health-care provision)?***
- ( ) Yes
- (•) No

3.1.d. **Does the research involve a clinical trial (of a substance, device, psychological or physical intervention)?***
- ( ) Yes
- (•) No

3.1.e. **Does the research involve the use of therapeutic/intervention techniques or procedures (non-clinical trial)?***
- ( ) Yes
- (•) No

Target Population

3.2.a. **Does the research focus on Australian Indigenous (Aboriginal and/or Torres Strait Islander) populations?***
- ( ) Yes
- (•) No

3.2.b. **Does the research involve participants under the age of 18 years?***
- ( ) Yes
- (•) No

3.2.c. **Does the research involve participants who are highly dependent on medical care?***
- ( ) Yes
- (•) No

3.2.d. **Does the research involve participants who have a cognitive impairment, intellectual disability or mental illness? ***
- ( ) Yes
- (•) No

3.2.e. **Does the research involve participants in other countries?***
- ( ) Yes
- (•) No

3.2.f. **Does the research involve pregnant women (with a research focus on the pregnancy) and/or the foetus (in utero or ex utero) or foetal tissue?***
- ( ) Yes
- (•) No

3.2.g. **Does the research involve participants who are likely to be highly vulnerable due to any other reasons?***
- ( ) Yes
- (•) No

Intrusiveness of Project

3.3.a. **Does the research use physically intrusive techniques?***
- ( ) Yes
- (•) No

3.3.b. **Does the research cause discomfort in participants beyond normal levels of inconvenience?***
- ( ) Yes
- (•) No

3.3.c. **Does the research collect potentially sensitive data? (e.g., related to a sensitive topic or vulnerable group; personal health/medical information; sensitive organisational strategies)***

- ○ Yes
- ◉ No

3.3.d. **Does the research involve deception of participants?***

- ○ Yes
- ◉ No

3.3.e. **Does the research involve limited disclosure of information to participants?**

- ◉ Yes
- ○ No

3.3.f. **Does the research involve covert observation of participants?***

- ○ Yes
- ◉ No

3.3.g. **Does the research produce information that, if inadvertently made public, would be harmful to participants?***

- ○ Yes
- ◉ No

3.3.h. **Does the research involve accessing student academic records?***

- ○ Yes
- ◉ No

3.3.i. **Does the research involve human genetic or stem cell research?**

- ○ Yes
- ◉ No

3.3.j. **Does the research involve the use of ionising radiation?***

- ○ Yes
- ◉ No

3.3.k. **Does the research involve the collection of human tissue or fluids?***

- ○ Yes
- ◉ No

3.3.l. **Does the research involve any uploading, downloading or publishing on the internet?***

- ◉ Yes
- ○ No

3.3.m. **Does the research seek disclosure of information relating to illegal activities or is the research likely to lead to disclosure of information relating to illegal activities?***

- ○ Yes
- ◉ No

3.3.n. **Does the research involve procedures that may expose participants to civil, criminal or other legal proceedings?***

- ○ Yes
- ◉ No

3.3.o. **Does the research involve gaining access to medical/health related personal information from records of a Commonwealth or State department/agency or private health service provider?***

- ○ Yes
- ◉ No

3.3.p. **Does the research involve gaining access to personal information (not medical/health) from the records of a Commonwealth or State department/agency or private organisation?***

- ○ Yes
- ◉ No

SECTION 4 - PROJECT DESCRIPTION

General Information

Note: All fields have a maximum of 4000 characters (unless otherwise specified) in plain text only.
If supporting documentation needs to be provided for the following questions (images, graphs etc), please upload as referenced appendices in Section 11 - "Required Attachments" below.

4.1. **Aims of the project.** Provide a concise statement of the aims of the project (maximum 2000 characters in plain language).*

The primary aim of this research is to perform human depression analysis. The motive behind this aim is to explore potential solutions to manage incidents resulted from depression. It plans to design a chatbot and collect data about depression, common trigger points and clinical symptoms such as mood variation, insomnia, interpersonal sensitivity, somatic symptoms and suicidal ideation to further study the topic and investigate possible resolutions to assist patients who suffer from depression. The NLP techniques and ML algorithms will be examined in this research to run multiple experiments and build a model to detect depression and degree of severity. ML is the underlining technology of this study that defines how machines learn from data to solve complex problems and emulate human capabilities using the mathematical algorithms to recognize patterns and learn to predict.
The AI-Powered Mental Health chatbot as a digital assessor will be used to communicate with human and identify their depression level. The outcomes can later help the medical system to run mass screening as a first point of assessment.

4.2. **Briefly describe the relevant background and rationale for the project in plain language.***

As the consequent of the emerging technology and encouraging individuals to spend most of the time on their mobile devices, it is inevitable that the world population would be diverted to spending times in loneliness. Avoidance of socializing and the tendency of this technological era that we are living in at the moment will result in more potentials to encounter mental diseases and in particular depression as the direct result of self-isolation. As most of the countries around the globe facing the severity of growing the numbers of people with depression, they are allocating considerable budget to address the negative impacts and encouraging the involvement of professionals to run researches in this area. As per the information declared by WHO, about one million patients with depression commit suicide per year (WHO, 2012). This later will insist on the necessity of running researches and more study to discourage and mitigate the level of commit suicides which are the consequence of depression among all the age group in Australia and around the world.

4.3. **Methodology and procedures**
Include specific details relating to any measures, interventions, techniques, and/or equipment used in the research.
Provide step-by-step details of the procedures with particular reference to what participants will be asked to do.
Provide details separately for different phases or conditions of the research or, where appropriate, different participant groups.*

To implement this research, a chatbot will be implemented to act as an interface and to be used to interview a range of people and record their conversation. The data-gathering phase includes collecting chat conversation via text or speech-to-text from participants to understand and analyze users' experiences where they are asked to provide information about their mood, sleep, appetite, and weight. Quantitative data also includes collecting users' physical, physiological, and behavioral data via chatbot to measure and analyze patterns in human activities.

Please find the conversations flowchart attached in Section 11. The chatbot will be arranged as per the design. The medical questions will be asked one by one and scored. To rank and determine the severity of patients' depression, a gird will be applied to score the participants' responses ranging from 0 to 3, where 0 indicates no depression and 3 indicates a participant with severe depression who requires immediate medical support. All the participants will be domestic and over 18 years old.

Before gathering participants' data via implemented chatbot, a consent form will be obtained from them. Participants' responses will be stored and be part of our dataset. The storage of this dataset will be managed securely. The data of each participant will be de-identified and a unique tagging will be allocated to each piece of information. Taking this approach, the privacy of participants and the confidentiality of their identifiable information will be respected. Data preparation will follow with the data analysis of the collected, de-identified responses using different technologies and techniques in Artificial Intelligence (AI). This includes adopting machine learning, natural language processing and sentiment analysis. Other datasets might be also used for implementing parts of our algorithms such as WordNet, the publicly available datasets.

Use this textbox if additional room is required for Question 4.3.

This question is not answered.

Data Collection

4.4. **Indicate all types of data to be collected.***

- ☐ Questionnaire / survey responses*
- ☐ Individual interview responses*
- ☑ Other data
- ☐ Group interview or focus group responses*
- ☐ Participant observations
- ☐ Blood or tissue samples
- ☐ Physiological measures
- ☐ Biomechanical measures
- ☐ Accessed health / medical records or data
- ☐ Accessed student academic records or data
- ☐ Archival data

Other data, give details:*

Chat conversation via text or text-to-speech to understand and analyze patients' experiences using NLP when users are asked to explain their conditions and the impacts on their daily lives, mood, sleep, appetite and so forth.

4.5. **Does the research only include the collection of anonymous and non-sensitive data (e.g. online survey, observational data) that poses no foreseeable risks or discomfort to participants?** *Any foreseeable risk must be no more than inconvenience.**

- ◉ Yes
- ○ No

4.6. **Does the research only include the use of non-identifiable and non-sensitive data from an existing database? (e.g., data mining).**
*Such data should pose no foreseeable risks or discomfort to individuals whose information is contained in the database, or to individuals/organisations responsible for the database.**

- ○ Yes
- ◉ No

4.7. **Does the research involve photographing or video recording of participants?***

○ Yes
◉ No

4.8. **Who will be collecting the data?** (give details for all types of data collected and all persons involved)*

The student will collect the data and there is a chance that Investigators will also assist at this phase. The data related to using the chatbot with questions and answers basis will be used. Participants are a range of people with no specific condition.

4.9. **Where will the data be collected?** (give details for all types of data collected and all locations)*

All the recorded answers will be stored in the password-protected database on the Google Cloud Platform during the data collection phase. The database will be imported and stored in the R Drive Research Storage of Victoria. Cleaned data will then be used to build and test the ML models during the data analysis phase.

To respect the privacy of participants and the confidentiality of their identifiable information, the number of collected factors related to the identity of the participants will be only limited to the first name, gender, and age for statistical purposes. The data of each participant including the answers they provide to the questions by the chatbot will be de-identified and a unique tagging will be allocated to each piece of information during the data pre-processing stage and the data analysis phase.

4.10. **How will the data be analysed?** (give details for all types of data collected)*

Open Information Extraction of NLP technique will extract entities and relation of each sentence and score as per the standard structured interview used professionally. Based on the information extracted from the conversation the model will score each answer. The entire conversation is attached for further reference.

4.11. **Who will have access to the data collected?** (give details of all persons who will have access to the data)*

1. Dr Khandakar Ahmed (Chief Investigator) - Access to entire data as a second backup
2. Payam Kaywan (student) - Access to entire data as the first location
3. Dr Ayman Ibaida
4. Prof Yuan Miao

4.12. **Will individuals or organisations external to the research team have access to any data collected?***

○ Yes
◉ No

SECTION 5 - PARTICIPANTS

Participant Group Details

5.1. **Provide details of all distinct participant groups below.**
Please be as precise as possible, if specific details have not been determined you must indicate that they are approximate.

Group 1
Details of specific participant population:*

No specific. Anyone can participate. The goal is to take the interview of a reasonable sample and see how efficiently NLP can perform close to a human expert.

Number of participants: *

Less than 100

Age range of participants:*

18+

Source of participants:*

The chatbot will be integrated into social media such as Facebook, Twitter, LinkedIn and so forth. Friends or friends of friends will be asked to participate in the conversation.

*Record details for additional group? (Group 2)**

○ Yes
◉ No

Participant Selection

5.2. **Provide a rationale for the sample size.***

This is a very first stage of the study. The first stage is to develop the system not to run the clinical trial. So, we need a sample that can assist us mainly to identify the accuracy of the system developed. If the developed system is accurate enough (evaluated by human expert) then we will go into the next phase of the project which will be developed later separately or the assistance would be offered to western health. Therefore, we believe at this stage 50+ sample is enough to capture various responses by the people that will have participants of different level of depression.

5.3. **Does the project include any specific participant selection and/or exclusion criteria beyond those described above in Question 5.1?***

- ○ Yes
- ◉ No

5.4. **Will there be a formal screening process for participants in the project?** (e.g. medical/mental/health screening)*

- ○ Yes
- ◉ No

5.5. **Does the research involve participants who have specific cultural needs or sensitivities?** (e.g., in relation to the provision of informed consent, language, procedural details)*

- ○ Yes
- ◉ No

5.6.a. **Does the research involve a participant population whose principal language is not English?***

- ○ Yes
- ◉ No

5.6.b. **Will documentation about the research (e.g., Information to Participants form and Consent form, questionnaires) be translated into a language other than English?***

- ○ Yes
- ◉ No

SECTION 6 - RECRUITMENT OF PARTICIPANTS

Recruitment and Informed Consent

6.1. **Will individuals other than members of the research team be involved in the recruitment of participants?***

- ○ Yes
- ◉ No

6.2. **How will potential participants be approached and informed about the research and how will they notify the investigators of their interest in participating?** **Attach copies of the "Information to Participants Involved in Research" form and any flyers or other advertising material to be used in the research in Section 11 - "Required Attachments" below.**

We are planning to leverage social media such as Facebook, Twitter, LinkedIn and so forth to target the samples and identify volunteers who are willing to participate in this research. Anyone can be a potential participant as long as the participant is over 18 and all the participants are domestic and live in Australia. we can benefit from any individuals who are a social media user and is willing to participate in the research. There are two different approaches for identifying and informing the participants about the research.
The first approach is a group. we will create a group and invite friends to the group. Then, we will explain the purpose of the research to the group members confirming that participation is voluntary and they have the right to withdraw at any stage. Any group members can then decide to participate and/or also recommend new friend or friends to the group who might be also interested in the research topic or they can leave the group if they feel it is not the topic and activity of interest anymore.
The second approach is to use the social media advertisement tool. The research team creates an ad from our social media page. The concept will be the same as a group and how we administer it. The group members or page fans can send a message to the administrator and inform their interest. They can ask questions and interact with other members. The group administrator role will be given to our research (the researcher and the supervisors) who will manage the group and provide answers to the participants' inquiries, obtain participants' voluntary agreements to participate and, continue to provide information as the subject or situation requires. This will enhance communication between researchers and participants and provide an opportunity for the researcher and the subject to exchange information and ask questions.

6.3. **Will potential participants be given time to consider and discuss their involvement in the project with others (e.g. family) before being requested to provide consent?***

- ◉ Yes
- ○ No

6.4. **How will informed consent be obtained from participants?***

- ☑ Participants be required to sign an informed consent form
- ☐ Consent will be implied e.g. by return of completed questionnaire
- ☐ Verbal consent will be obtained and recorded (audio, visual or electronic)
- ☐ Other

Attach copies of Consent Forms to be used in the research in Section 11 - "Required Attachments" below.

6.5. **Provide procedural details for obtaining informed consent:***

The consent form has been attached in Section 11.
Before granting participants access to the chatbot to collect data, a consent form will be shared with them via the social media group/page requesting the potential participants to read and sign the terms of the informed consent (please refer to section 6.2). Upon the participant's confirmation and receipt of a signed copy, we will store a copy in the research repository and ask the participant to also record a copy as a reference and reminder of the information conveyed. The next step is to start the data collection phase by giving the subject access to the chatbot.
Here are more details upon procedure obtaining informed consent:
As the consent process proceeds,
Step one) the research aims and approach will be communicated with the participants via the social media group. This includes how the research will be performed, the potential benefits and risks involved and allowing the potential subject an opportunity to ask questions.
Step two) Following the information sharing, the potential participant will be provided with a written consent form and sufficient time ranging from hours to 1 day to consider whether or not to participate in the research.
If the participants cannot make a decision or suffer from an impaired capability we ensure to avoid the impacts on the patients.
Step three) After allowing the potential subject time to read the consent form, a research team (group admin) will be available through the social media group/page to answer any additional questions that participants may still have.
Step four) Collecting the signed consent forms and granting the participants access to the chatbot to start the conversation with the chatbot and provide their responses to the questions asked by the chatbot.

6.6. **Will you be seeking consent in order to contact participants in the future for related research participation and/or use participants' data for related research purposes?***

- ○ Yes
- ◉ No

Competing Interests

6.7. **Will <u>any</u> dual relationship or conflict of interest exist between any researcher and potential or actual participants?** (e.g., a member of the research team is also a colleague or friend of potential participants)*

- ○ Yes
- ◉ No

6.8. **Does the research involve participants who are in dependent or unequal relationships with any member(s) of the research team or recruiting organisation/agency (e.g. counsellor/client, teacher/student, employer/employee)?***

- ○ Yes
- ◉ No

6.9. **Will you be offering reimbursement or any form of incentive to participants (e.g., payment, voucher, free treatment) which are not part of the research procedures?**
Gift cards can only be ordered through Procurement using the Gift Card Request Form located here.
You must clearly identify the value, quantity and type of gift cards to be purchased in both the Ethics Form and the Gift Card Request Form. *

- ○ Yes
- ◉ No

6.10. **Is approval required from an external organisation?** (e.g., for recruitment of participants, data collection, use of premises)*

- ○ Yes
- ◉ No

SECTION 7 - RISKS ASSOCIATED WITH THE RESEARCH

Physical Risks

7.1.a. **Are there any PHYSICAL RISKS beyond the normal experience of everyday life, in either the short or long term, from participation in the research?***

- ○ Yes
- ◉ No

Psychological Risks

7.1.b. **Are there any PSYCHOLOGICAL RISKS beyond the normal experience of everyday life, in either the short or long term, from participation in the research?***

- ◉ Yes
- ○ No

High probability risks:*

Referring to 7.1 Aims of the project, the project involves "clinical symptoms such as mood variation, insomnia, interpersonal sensitivity, somatic symptoms and suicidal ideation to further study the topic and investigate possible resolutions to assist patients who suffer from depression.", so there may be psychological risks associated with the research

Low probability risks:*

As they are physical conditions and symptoms they might not necessarily result in psychological risks. So in this research, the intention is to avoid such connections.

How will the risk(s) be minimised?*

This research aim is to detect depression at its early stages and to prevent such consequences.
Accordingly, the participants will be randomly selected. That is, they can be healthy with no depression, or depressed or severely depressed.

How will these risks be managed if an adverse event were to happen?*

Moreover, If we are detecting severe depression condition based on chatbot conversation, we will advise the participant to visit a specialist as soon as possible or contact a helpline. As a result, we are preventing further damage and consequences of the severe depression.

Social Risks

7.1.c. **Are there any SOCIAL RISKS beyond the normal experience of everyday life, in either the short or long term, from participation in the research.** (e.g., possible inadvertent public disclosure of personal details or sensitive information)*

- ○ Yes
- ◉ No

Other Risks

7.2. **Does the research involve any risks to the researchers?***

- ○ Yes
- ◉ No

7.3. **Does the research involve any risks to individuals who are not part of the research, such as a participant's family member(s) or social community (e.g., effects of biographical or autobiographical research)?***

- ○ Yes
- ◉ No

7.4. **Are there any legal issues or legal risks associated with any aspect of the research that require specific consideration (i.e., are significant or out of the ordinary), including those related to:**

- participation in the research,
- the aims and nature of the research,
- research methodology and procedures, and/or
- the outcomes of the research?

*

- ○ Yes
- ◉ No

7.5. **Risk-Benefit Statement:**
Please give your assessment of how the potential benefits to the participants or contributions to the general body of knowledge would outweigh the risks.
*Even if the risk is negligible, the research must bring some benefit to be ethical.**

Worldwide nearly 1 million people take their lives by committing suicide. Every suicidal death has grave impacts on society and the whole human race. With many suicidal cases reported every month, the early detection and prevention are imperative for reducing the fatality. The unprecedented epidemic like the COVID-19 crisis in 2020 and the pace of change in the society may also lead to more mental issues and consequently increases in suicidal cases. This study aims to develop an AI Bot that can assist in mass screening for early detection of human depression level to intervene in time and prevent fatalities.
The potential risk associated with this research is the security breaches and in order to eliminate the impact on the participants, and to mitigate the risk of identifiability of the subjects and to keep their privacy safe, the followings actions will be carefully considered:
a) Reducing the variety and number of factors collected for the participants when practical.
b) Separating the storage of identifications and the relevant data.
c) Accessing to be allocated to the supervisors and the researcher.
d) Securing the data by encryption when communicating within the research team
Despite the risks associated with this research, there are a set of benefits related to the participants. By participating in this research:
a) The subjects can be informed of any early signs of depression. As early detection is a key to have the depression cured completely and they benefit from this quick detection.
b) The subjects are contributing to the knowledge gained from this research that will hopefully benefit the society
c) The subjects have a chance to take part in research that will hopefully find new ways for early detection of depression and its severity with the use of Artificial Intelligence (AI).

SECTION 8 - DATA PROTECTION AND ACCESS

Data Protection

8.1. **Indicate how the data, materials and records will be kept to protect the confidentiality/privacy of the identities of participants and their data, including all hardcopies, electronic files and forms.** *See help for definitions.**

- ◉ Data and records will be entirely anonymous
- ○ Data and records will be coded and non-identifiable
- ○ Data and records will be coded and re-identifiable
- ○ Some or all of the retained data and records will include personally identifying information
- ○ Other

8.2. **Who will be responsible for the security of and access to confidential data and records, including consent forms, collected in the course of the research?***

The CI Dr Khandakar and the research student Payam

8.3. **Where will data, materials and records be stored during and after completion of the project?** Provide full details of the location for all types of data.
Note: The VU Research Storage provides secure digital storage and long term retention for research project data including graduate research projects.

During the project:*

All the recorded answers will be stored in the secured database during the data collection. The database will be imported and stored in the R Drive Research Storage of Victoria University. Then, the data of each participant will be de-identified and a unique tagging will be allocated to each piece of information during the data Pre-processing stage. Cleaned data will then be used to build and test the ML models during the data analysis phase.

Upon completion:*

All collected data and results will be securely stored at the R Drive Research Storage of Victoria University.

8.4. **Indicate the minimum period for which data will be retained.** See help for definitions.*

- ○ Indefinitely
- ◉ 5 years post publication
- ○ 7 years post publication
- ○ 15 years post publication
- ○ 25 years after date of birth of participants
- ○ Other

8.5. **Who will be responsible for re-evaluating the data/materials after the retention period and considering a further retention period for some or all of the data/materials?***

Dr Khandakar Ahmed (CI)

8.6. **Will you transfer your data or materials to a managed archive or repository during the project, after the project, or after the retention period? Which discipline specific or institutional archives will be considered?**
*Note: Some funding agencies and publishers may require lodgement with an archive or repository. Retain a copy at VU where possible.**

We have no plan to archive in any external repository. We will retain the copy at VU to minimize the risk.

8.7. **When further retention of data and materials is no longer required, responsible disposal methods should be adopted. Disposal software should also be adopted if digital software, computer hardware, disks or storage media are reused or retired. What methods of appropriate disposal or destruction will be employed?**
Note: Personal, sensitive or confidential information, both digital and hardcopy, will require secure destruction or disposal. For other materials you may need to refer to the Hazardous Materials Policy, Animal Ethics Standard Operating Procedures, or the Ethics and Biosafety site found on the VU Office for Research website. *

The data will be permanently deleted after the retention period and the disk will be formatted to remove all trace.

SECTION 9 - DISSEMINATION/PUBLICATION OF RESEARCH RESULTS

Publication Details

9.1. **Indicate how the results of this research will be reported or published.***

- ☑ Thesis
- ☑ Journal article(s)
- ☐ Book
- ☐ Research report to collaborating organisations
- ☐ Conference presentation(s)
- ☐ Recorded performance
- ☐ Other

9.2. **Will any contractual agreement exist between the researchers and a third party that will restrict publication of the research findings?***

- ○ Yes
- ◉ No

9.3. **Are there any other restrictions on publications or reports resulting from this project?***

- ○ Yes
- ◉ No

SECTION 10 - OTHER DETAILS

Comments

10.1. **In your opinion, are there any other ethical issues involved in the research?***

- ◉ Yes
- ○ No

If YES, provide details:*

Participants will use the chatbot online using social media in unsupervised fashion at their own time. In small cases, the participant may not answer the question with due diligence or may give a false response to deceive the entire experiment.

10.2. **Additional information and comments to support this application:**

This question is not answered.

SECTION 11 - DOCUMENTS, ATTACHMENTS AND SUPPLEMENTARY FORMS

Required Attachments

The following documentation must be attached to your application:

- Scanned copy of the Declaration Form for External Investigators (if applicable)

- Copy of the '**Information to Participants Involved in Research**' form *(Please use the templates provided on the Human Research Ethics website)*

- Copy of Consent Forms to be used in the research *(Please use the templates provided on the Human Research Ethics website)*

- Any flyers or other advertising material to be used in the research

11. **Please attach each of the items specifically listed above as well as any other supporting documentation.**
All documentation must be accurately titled and referenced to within the body of your application where appropriate (i.e. "Appendix A - Declaration Form", "Appendix F - Risk Factor Assessment Questionnaire", etc.). Please limit file types to .doc, .docx, .xls, .xlsx, .pdf, or small-medium images (ie, .gif, .jpg).*

1	Document type	Soft copy
	Name	Consent Form
	Reference (Document Title)	VU-HREApplication-Consent-Form-for-Participants-Involved-in-Research-Final.docx
	Description	It is in "draft" format and we should customize each for the participant.
2	Document type	Soft copy
	Name	Information to Participants Involved in Research
	Reference (Document Title)	VU-HREApplication-Information-to-Participants-Involved-in-Research_Final.docx
	Description	I have left some comments, so together we can result in a meaningful and conprehensive word documet.
3	Document type	Soft copy
	Name	Declaration Form for External Investigators
	Reference (Document Title)	
	Description	
4	Document type	Soft copy
	Name	Reference List
	Reference (Document Title)	
	Description	
5	Document type	Soft copy
	Name	Advertising Material (flyers etc.)
	Reference (Document Title)	
	Description	
6	Document type	Soft copy
	Name	Conversation Flowchart
	Reference (Document Title)	Conversation Flowchart.pdf
	Description	This is a flowchart that we will use to design the conversation through chatbot. As it is converted into pdf format by zooming in you might encounter a low quality, however, a powerpoint format is also available upon request.
7	Document type	Soft copy
	Name	Conversation
	Reference (Document Title)	Conversation Flowchart.docx
	Description	Here are the flowcharts of the conversation we have designed according to standard guidelines.

Note: Please click the Question Help icon above for instructions on how to upload documents and use this table.

If you are certain that you do not need to supply a Consent Form or Information to Participants Involved in Research (both of which are mandatory), please tick Hard Copy and type 'N/A' in the Reference field.

SECTION 12 - SUBMISSION DETAILS

Declaration

I / we, the undersigned, declare the following:

- I / we accept responsibility for the conduct of the research project detailed above in accordance with:
  a. the principles outlined in the National Statement on Ethical Conduct in Human Research (2007);
  b. the protocols and procedures as approved by the HREC;
  c. relevant legislation and regulations.
- I / we will ensure that HREC approval is sought using the Changes to the Research Project process outlined on the Human Research Ethics website if:
  a. proposing to implement change to the research project;
  b. changes to the research team are required.
- I / we have read the National Statement on Ethical Conduct in Human Research prior to completing this form.
- I / we certify that all members of the research team involved the research project hold the appropriate qualifications, experience, skills and training necessary to undertake their roles.
- I / we will provide Annual / Final reports to the approving HREC within 12 months of approval or upon completion of the project if earlier than 12 months.
- I / we understand and agree that research documents and/or records and data may be subject to inspection by the VUHREC, Ethics Secretary, or an independent body for audit and monitoring purposes.
- I / we understand that information relating to this research, and about the investigators, will be held by the VU Office for Research. This information will be used for reporting purposes only and managed according to the principles established in the Privacy Act 1988 (Cth) and relevant laws in the States and Territories of Australia.

*

1	ID	E5109078
	Name	DR KHANDAKAR AHMED
	Role	Chief Investigator
	Type	Internal
	Declaration signed?	Employed
	Signed on	06/10/2020
2	ID	E5020390
	Name	PROF YUAN MIAO
	Role	Associate Investigator
	Type	Internal
	Declaration signed?	Employed
	Signed on	06/10/2020
3	ID	E5111613
	Name	DR AYMAN IBAIDA
	Role	Associate Investigator
	Type	Internal
	Declaration signed?	Employed
	Signed on	06/10/2020
4	ID	S4643196
	Name	MR Payam KAYWAN
	Role	Student
	Type	Student
	Declaration signed?	Employed
	Signed on	11/12/2020

Note: Please click on your name in the table above to complete your declaration; or click on the name of an External Investigator to acknowledge that their declaration has been supplied.

Declaration Instructions and Information

- A digital signature must be supplied by each and every member of the research team using the declaration table above.
- The 'Needs Signature' icon shows which records you are responsible for signing.
- Physical signatures are not required for VU staff and students in applications using form version v.13-07.
- External Investigators do not have access to Quest. The Chief Investigator must supply a completed physical declaration on their behalf by following the steps below:
    1. Send the person a copy of the full application form (including any attachments), as well as the **Declaration Form for External Investigators** document.
    2. Once returned, attach the signed *External Investigator Declaration Form* document in 'Section 11 - Required Attachments'.
    3. Enter into the External Investigator's record in the above declaration table and mark the checkbox to indicate these steps have been completed, include the date you have done so.

       The 'sighted by' field will automatically populate with your name. *(Only the Chief Investigator will have permission to complete this step.)*
- The application cannot be submitted until all members of the research team have logged in and completed this declaration.

Finalise Application

Reminders

- All applications must be sighted and approved by all members of the research team and any relevant parties. Please ensure each member of the research team has completed their declaration in *'Section 12 - Declaration'* above, including any declaration forms supplied on behalf of External Investigators. *Applications will not be reviewed without appropriate authorisation.*
- It is strongly recommended that you save a PDF version of your application before submitting as you will lose access to the electronic record while it undergoes formal review.
- **You are reminded that your project may not commence without formal written approval from the appropriate Human Research Ethics Committee.**

Ready to Submit?

- Once the form is complete and all documents are attached, **click on the *'Action'* tab** above the left-hand form navigation, then **click *'Submit Application'*** to forward the application to the Ethics Secretary to be reviewed and assigned to a Committee meeting.
- You will receive an automatic email notification from Quest when your application has been successfully submitted.
- *Note: Only a Chief Investigator is able to submit an application for ethical approval. The Chief Investigator who is marked as the primary contact for this application is:*

DR KHANDAKAR AHMED