Deepfake Detection Application

Project Plan

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# Project Overview

Your project overview should:

* Provide a specific (in scope and scale) definition of your problem

Individuals using social media platforms who encounter misinformation via means of deep faked or artificially generated videos and or images.

* Identify relevant stakeholders and the nature of their interest

Individual users on social media and internet as a whole. Individual interest driven by social learning. Additional stakeholders include the project development team, and sources of funding.

* Identify the proposed solution, and

User post authentication or scrapes users screen and detects altered content.

* Provide a justification of this solution from a criminological perspective, that speaks to the interests of relevant stakeholders.

Mitigates propagation of disinformation by giving the users the tools

# Project Team

List team members and identify their strengths and the role that they are going to play in managing this project.

| Team member | Role |
| --- | --- |
| Jonathan Willner | Project leader |
| Edward Winston | Editor and reviewer |
| Luke Lewis | Research and Planner |
| Alex Buchhorn | Team leader and Designer |
| Sebastian Focas | Mediator |

# Project Outcomes

The outcome will consist of two prototypes; a browser extension and a dedicated mobile app. Both prototypes will serve the same purpose, as an authentication tool for deepfake images and videos but for two different systems. The browser extension will function by performing background scans of all media sources on a given webpage. Informing the user with a popup if a suspected deepfake has been detected. For the mobile app, the user can open a given link shared from a social media app or web browser, and scan for deepfake material.

Beginning with conceptualisation, a block framework will be created by all project members. Detailing all components that our project team wishes to incorporate into the final product, and how they’re associated with each other. Following this, one of our designers will devise several graphical elements for use in the product’s user interface. The project team will then split in to two dedicated groups. One focused on designing the browser extension, and the other focused on the mobile app. Both of which utilising the same UI elements, designed earlier. Once the wireframes of both prototypes have been completed, the project team will begin testing both designs. Feedback collected from this, will inform the final changes needed. Lastly, the wireframes will then be presented to potential investors.

Social learning theory theorises that people imitate the behaviour that they observe within their environment. (Online MSW Programs February 2022). With the ease of access to media manipulation tools, Social Learning Theory (SLT) explains that individuals are exposed to these models and in turn anticipate and most of the time receive more rewards and fewer punishments for their actions. While these people differentially associate themselves with those who are involved with making AI or deep faked media they may not understand that in doing so could be a criminal act. This behaviour could eventually progress into criminal behaviour without the individual understanding why. Creating the detection software will make deepfakes easier to spotted by the general public. This will make deception via deepfakes less successful and will lower the use of it. This will lower the amount of people that, the would-be offenders could imitate. The creation of this detection software will encourage others to make deepfake detection software through social learning theory. This is because by imitating this software they will create higher level detection software.

# Project Deliverables and Timelines

| Product / Milestone | Responsible Team Member | Delivery date |
| --- | --- | --- |
| Project start | All |  |
| Block framework | All | 30/8 |
| UI logo elements created | Alex Buchhorn | 6/9 |
| Browser extension mockup | Jonathan Willner, Edward Winston | 27/9 |
| App extension mockup | Luke Lewis, Sebastian Focas | 27/9 |
| Testing | All | 4/10/23 |
| Final edits and showcasing wireframes | All | 4/10/23 |
| Project finish | All | 11/10/23 |

# Project Resources

Document the resources that will contribute to the development of your proposed solution. Consider whether your team has or is able to access these resources:

* Faceforensics++ (deepfake data set)
* Draw.io (wireframe)
* Figma (wireframe)
* Office 365
* Git hub
* Java script (Extensions)
* IEEE access
* Swift (apple app)
* Java (android app)
* Ms paint (symbol design)

# Risks

Document any foreseeable risks to project completion and identify strategies for mitigating these risks.

* Project members scheduling not aligning resulting in lack of communication.
  + Maintain consistent communications through teams and update team members with progress or difficulties.
* Scope-creep.
  + Clear and concise vision for final product.
* Project unable to meet design standards (Unable to consistently detect deepfakes or produces false positives/negatives).
  + Ensure properly researched and applicable techniques are implemented.
* Lack of consumer engagement/User Adoption
  + Engage in sufficient marketing for the product.
* Data availability
  + Consider partnerships with companies that have large datasets. Also consider combining datasets to create one larger set.
* Performance (High accuracy results may result in performance impacts)
  + Prioritize optimisation during development.
* Browser compatibility
  + Prioritize browser compatibility during development by conducting thorough testing on multiple browsers.

# Communication Plan

Communication via teams which is both synchronized and asynchronized depends on the online status of group members. One communication channel was created in Microsoft teams where all members are a part of labelled GC group. Each time a group member sends a message all group members are notified via team notification.

Synchronized communication via meeting in person each week at a pre-determined time was discussed. Meetings are held on Wednesday afternoons at 2pm and if a team member is unable to attend the session for whatever reason, they would message the group chat in Microsoft teams.

References

Online MSW Programs (February 2022). *Introduction to Social Learning Theory in Social Work.*edX*.* <https://www.onlinemswprograms.com/social-work/theories/social-learning-theory/#:~:text=Social%20learning%20theory%20posits%20that,behavior%20is%20reinforced%20in%20others>.

## Appendix 1. Team Contract

Attach your team contract.

**Team Contract**

***Team Name: Team GC***

**Project Vision**

What is the team’s grade expectation on this course? Is there consensus?

Go for a 7 happy with a 6

Please ask each other: “Is each member committed to putting in the work to achieve this grade? If not, how will the team resolve this?” each member have put time aside for this course

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Please circle/highlight the grade that you group is targeting:

**1-3 4 5 *6*  7**

**Group Members’ Behavioural Expectations**

|  |  |  |
| --- | --- | --- |
| Name | Behavioural Expectation | Specific Example |
| Sebastian Focas | Meeting set deadlines | Sharing completed individual work at least 72 hours before submission | |
| Alex Buchhorn | Communicate efficiently | Participate in group conversations and input ideas | |
| Jonathan Willner | Attending weekly meetings. | Attend in person every week for Wednesday 2-5pm. | |
| Edward Winston | Respond in a timely manner | Answer the teams group chat within 48 hour | |
| Luke Lewis | Maintain good communication with group members. | Attend group meetings each week and prompt/respond conversation about the project. | |

**Elements of Effective Teamwork**

|  |  |
| --- | --- |
| COMMUNICATION | For effective teamwork to occur there needs to be a free, open and appropriate expression of ideas and feelings at all times. Each member actively listens to other members, and after listening, provides effective non-judgmental feedback. Members take responsibility to communicate their ideas, thoughts, concerns, etc. Respectful communication (verbal and non-verbal) in response to cultural and personal differences contributes to team cohesion. |
| PARTICIPATION | Team members need to contribute fully to the best of their ability. Members need to take initiative in participating in the group tasks, especially in areas where they may have strengths. Those with greater ability may also need to help those who may be struggling by guiding, coaching or critiquing. Those who may be struggling should be clear when they need clarification or assistance. To make teams work well, members need to make concerted efforts to be available for meetings. Wanting the group to succeed will contribute to success – begrudging contributions will erode success. |
| GIVE AND TAKE | There may be various ideas of how to achieve success within the team. Therefore, members need to be open to compromise and recognize that it is sometimes better to give in than be “right”. Members need to discern the differences between their own needs and those of the group, ideally putting needs of team before the needs of the individual. |
| LEADERSHIP | Each member can contribute by being a leader in the group – a group can have more than one! Members lead with the skills and abilities they possess. A member who promotes team actions, decisions and ideas demonstrates leadership. A leader recognizes that he/she needs the team, and lets each member know where they stand. Leadership is also required to initiate the resolution of team breakdowns. |
| ORGANIZATION | An effective team needs to be organized. Members determine how the team is organized. This in turn, contributes to a member understanding his/her responsibilities, ensuring things are getting done and that there is no repetition in completing tasks. |
| PREPARATION | For teams to be successful, members need to be responsible with their duties and do the work required as agreed upon. Otherwise, team progress could be impeded, especially if further steps are dependent on the required work. Everyone needs to know that they can rely on their team members in completing assigned tasks/preparation work so that the team can progress in its objective(s). |
| PROCEDURE | In order for teams to function well, they need to set up procedures, which will clearly identify members’ responsibilities and expectations for each other. Some type of order is necessary for teams to function effectively and smoothly, otherwise teamwork may end up being inefficient, inconsistent and regularly in “crisis”. Members need to function according to agreed upon procedures which will help to guide them in times of dilemmas. |
| CAPABILITY | Each member brings strengths to the group – not only existing skills and/or knowledge, but also the potential to learn, problem-solve and contribute to the team. Demonstrating one’s interest and potential will often lead others to have more confidence in that member. |
| COMMITMENT | Members who are committed will often be the ones taking initiative to achieve goals/objectives of the team. They will be the ones who want to make sure the goals are clear to achieve success. Commitment needs to be directed to team goals, not individual goals. The level of commitment is usually related to the level of reliability. |
| PROGRESS and ASSESSMENT | A well running team is always interested in how things are going. Members of an effective team will contribute to an attitude of action and momentum. Often, progress is a good indicator of how well the team is working together. Regular assessment is necessary for a team to ensure it is continuing to work well together. An effective team is not afraid to make changes in how it is organized or in it’s procedures so that improvement in achieving the goal/objective occurs. |

**Skill Strength Identification**

|  |  |  |
| --- | --- | --- |
| Name | Skill Strength | Specific Activity |
| Sebastian Focas | Give and Take | Exchanging ideas and contributing to other's assigned work, to help meet deadlines | |
| Alex Buchhorn | Leadership | Initiating conversation leading to change and a better understanding of group direction and project. | |
| Jonathan Willner | Progress and assessment | Constant attendance and work through this course. | |
| Edward Winston | Commitment | Set enough time aside for this course | |
| Luke Lewis | Preparation | Consistently completing work with the allotted time frame. | |

**Skill Development Identification**

|  |  |  |
| --- | --- | --- |
| Name | Skill Development | Specific Activity |
| Sebastian Focas | Communication | Timely responding to messages and emails to ensure everyone’s informed with each other’s progress | |
| Alex Buchhorn | Capability | Increase my ability to learn in different areas of expertise through the experience and interaction with others. | |
| Edward Winston | Leadership | Splitting the work with others when its necessary. | |
| Jonathan Willner | Capability | Learn and grow from other team members capabilities. | |
| Luke Lewis | Progress and assessment | Regularly check in with group to keep track of assessment progress. | |

**Team Member Availability Schedule**

Green indicates weekly common time as this is the only available space all 5 group members can commit to in-person meetings. Most of us are available on Saturday mornings if we have an urgent matter to attend to. This table only indicates in-person availability all team members are contactable via online communication throughout the trimester.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Time | Mon | Tues | Wed | Thurs | Fri | Sat | Sun |
| 8-9 |  |  |  |  |  |  |  | |
| 9 - 10 |  |  |  |  |  |  |  | |
| 10 - 11 |  |  |  |  |  |  |  | |
| 11 - 12 |  |  |  |  |  |  |  | |
| 12 - 1 |  |  |  |  |  |  |  | |
| 1 - 2 |  |  |  |  |  |  |  | |
| 2 - 3 |  |  |  |  |  |  |  | |
| 3 - 4 |  |  |  |  |  |  |  | |
| 4 - 5 |  |  |  |  |  |  |  | |
| 5 - 6 |  |  |  |  |  |  |  | |
| 6 - 7 |  |  |  |  |  |  |  | |

**Team Activity Plan**

|  |  |  |
| --- | --- | --- |
| Tasks / Requirements | Who is completing this activity/task | Date to be Completed |
| Pitch | All | 23/08 | |
| Presentation plan | All | 25/08 | |
| Block framework | All | 30/8 | |
| UI logo elements created | Alex Buchhorn | 6/9 | |
| Browser extension mockup | Jonathan Willner, Edward Winston | 27/9 | |
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| Project finish | All | 11/10/23 | |

**Milestone Review Dates**

|  |  |
| --- | --- |
| Review Date | Location/ Method of Communication |
| 30/8/2023 | In-Person |
| 27/9/2023 | In-Person |
| 9/10/2023 | Teams Meeting |

**Contract Agreement**

This is an official contract. Once you have signed it you are accountable.

Name: Jonathan Willner Signature: JW Date: 09/08/23

Name: Sebastian Focas Signature: SF Date: 9/08/2023

Name: Alex Buchhorn Signature: AB Date: 9/8/2023

Name: Luke Lewis Signature: LL Date: 09/08/2023

Name: Edward Winston Signature: EW Date: 9/08/2023

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Adapted from: <https://www.georgebrown.ca/peerconnect/team-contract.pdf>