



Impact Case Study

Umibot

Introduction

The growth of social media has been accompanied by the growth of online abuse, including cyberbullying, grooming and image-based abuse.

In 2019, 1 in 3 Australians surveyed said they had experienced at least one form of image-based abuse since the age of 16, where someone had taken, shared, or threatened to share, nude, semi-nude or sexual images (photos or videos) without consent. Image-based abuse also includes fake or digitally altered images, including “deepfakes” – fake but highly realistic videos created using artificial intelligence.

The impacts of this growing form of online abuse have been studied and are well understood, but many victims need help to find further support.

Background

RMIT’s Professor Nicola Henry has been a member at the Centre for Cyber Security Research and Innovation (CCSRI) since 2021, bringing over 20 years of research experience in the field of sexual violence. Her work investigates the extent, nature and impacts of sexual violence and harassment, including legal and prevention responses in Australian and international contexts.

In the course of her research into people’s experiences of image-based abuse, Professor Henry found that many people were unaware that what had happened to them was a crime. For many victims, the number one priority was to get the content removed or taken down, but many did not know where to find help and support.

After identifying the need for innovative digital tools to help address image-based abuse, Professor Henry and her colleague, Research Fellow Dr Alice Witt, joined forces through an Australian Research Council (ARC) Future Fellowship project to investigate the role of digital tools, platforms and services for detecting, preventing and responding to image-based abuse.

Using artificial intelligence, Professor Henry and Dr Witt developed a chatbot called Umibot (Umi for short) to provide information, support and general advice to victim-survivors, bystanders and perpetrators of image-based abuse.

“Image-based abuse is a huge violation of trust that’s designed to shame, punish or humiliate. It’s often a way for perpetrators to exert power and control over others,” said Professor Henry.

“We know victim-survivors of image-based abuse face a spectrum of experiences over and above image-based abuse, so we developed Umibot as a fully inclusive and trauma-informed empowerment tool to support people who’ve had diverse experiences and come from different backgrounds.”

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What's next...

The research

Professor Henry's research on image-based abuse commenced 10 years ago when she worked on an ARC Discovery project on technology-facilitated sexual violence, led by RMIT's Professor Anastasia Powell. They discovered that experiences involving image-based abuse – colloquially known as “revenge porn” at the time – was a reoccurring theme among survey respondents and interview participants. In response, Henry and her team narrowed their focus specifically to image-based abuse through a series of national and international studies.

This body of research led to the design of Umibot, with the help of Melbourne-based digital agency, Tundra, using Amazon Lex, an artificial intelligence service for building natural language chatbots.

Human support for people who have experienced this kind of online abuse remains vital, but Umibot acts as an important informational tool to help victim-survivors, bystanders and, to a lesser extent, perpetrators to navigate this complex and distressing issue. Umibot provides research-based information on a wide-range of topics, including the laws in Australia, reporting options, support services, collecting evidence and how to keep safe online.

“By providing a wide-range of information on image-based abuse, and tailoring that information for different audiences, Umibot is designed to also help bystanders and even perpetrators as a potential tool to prevent this abuse from happening,” says Dr Witt.

Professor Henry and Dr Witt consulted with a diverse range of experts, including the Office of the eSafety Commissioner, to make Umibot as inclusive, trauma-informed and empowering as possible. The research team also conducted an independent accessibility audit to ensure the chatbot complied as closely as possible with global accessibility standards.

Umibot asks users to identify whether they are over or under 18 and if they need help for themselves or someone else, or if they are concerned about something they have done. This will inform what sort of support and information they get to suit their experiences. When chatting with Umibot, users can either type questions in the free-text box or select from pre-programmed buttons, or options, to find what they need.

Importantly, in line with Umibot's RMIT-approved Privacy Policy, the Umi chatbot does not record conversations with users or ask for personal information. The research team does, however, collect de-identified and aggregate information about how Umibot is used; for instance, the total number of users, the most frequented pathways and topics and so on. This information will help to improve the chatbot's functionality and shed light on how useful the chatbot is in practice.

Funding and institutional support

The Umibot research and chatbot was funded by the Australian Research Council. Melbourne-based digital agency Tundra helped to design Umi, largely using Amazon Web Services. Amazon provided free, ad hoc guidance on Umibot's machine learning as part of an enterprise agreement with RMIT.

Project outcomes

Umibot was launched in December 2022 at umi.rmit.edu.au

At the time of writing, the chatbot has already been accessed by 665 unique users, who have had 928 sessions (conversations with Umi) since its launch on 1 December 2022.

Umibot has received media coverage on related websites and in new services around Australia since its 2022 launch, including:

- <https://www.rmit.edu.au/research/impact/image-based-abuse-and-legislative-reform>
- <https://www.rmit.edu.au/news/all-news/2022/dec/umibot>
- <https://www.imagebasedabuse.com/umibot-launch/>
- <https://www.bay939.com.au/news/entertainment/137883-chatbot-goes-online-to-fight-sex-tortion>
- <https://www.technologydecisions.com.au/content/it-management/news/umibot-to-help-web-users-report-image-based-abuse-129838670>
- <https://www.tundra.com.au/work/umibot-chatbot/>
- <https://honey.nine.com.au/parenting/new-tool-to-help-people-affected-by-image-based-abuse/489442f1-f40a-4e32-a109-32cf2f3ef3a0>
- <https://sciencemeetsbusiness.com.au/new-chatbot-goes-online-to-fight-image-based-abuse/>
- <https://www.perthnow.com.au/politics/human-rights/chatbot-goes-online-to-fight-sex-tortion-c-9024941>

Amazon is also in the process of writing a case study about Umibot which will be available later in 2023. australian-university-sector/cybersecurity

Overview of the impact

Professor Henry's research has had an impact on laws, policies and practices in Australia as well as internationally. It has prompted federal, state and territory governments, to introduce new criminal offences which tackle image-based abuse. Under the new federal Online Safety Act perpetrators and technology companies can also face civil penalties.

Professor Henry is also active in the media, raising the profile of image-based abuse as an important issue.

Information on Umi's impact on individuals is not available for privacy reasons.

Next steps

Researchers are hoping to develop a Umibot Version 2 for victim-survivors, bystanders and perpetrators of image-based abuse in the next few years.

“We hope that Umibot will not only empower victim-survivors to find support, but also help us create ‘best practice’ guidelines for designing, developing and deploying digital tools and interventions for addressing online harms more broadly,” Dr Witt said.