Early Predator Identification System (EPIS): A Powerful Machine Learning Model To Stop the Epidemic of Child Predators on the Modern Internet

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Currently, child predators finding targets on the internet for exploitation is commonplace. Over 500,000 predators are active daily, with one in five teens receiving unwanted sexual solicitation via the World Wide Web. Current prevention measures include manual moderation and raw content filtering, which prove to be slow and ineffective. This project solves this by developing a performant and accurate neural network with a novel, localized approach. This project employs a rapid detection scheme for identifying predators through the use of recurrent neural networks for conversational analysis. Long-Short Term Memory algorithms were used to thoroughly analyze an entire conversation for predatory behavior, and sentiment vectors were added to determine whether words carried a sexual connotation or not. By training the model on a custom-made dataset of over 30,000 conversations, it was able to achieve 99.03% accuracy on a blind test with AUC = 0.996. EPIS was also able to process an entire conversation in less than a second, proving that the concept can work on a large scale. The model was implemented in the Early Predator Identification System (EPIS), which can be installed today on a child's phone or computer. EPIS detects conversations on messaging apps like Discord displaying predatory behavior, notifies the users, and allows them to take immediate action by blocking and reporting the user. EPIS is automated, fast, and powerful compared to existing methods of stopping predators. With EPIS, children can stay safe on the internet, and be kept out of the hands of abusers.

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