

# NDSS Symposium 2026 Call for Posters

## **Type 2: Recently published research**

### **1. Full bibliographic reference (title, authors, date, venue, etc.) to the paper:**

F. Sharevski, J. V. Loop, B. Evans and A. Ponticello, "(Blind) Users Really Do Heed Aural Telephone Scam Warnings," *2025 IEEE Symposium on Security and Privacy (SP)*, San Francisco, CA, USA, 2025, pp. 74-92, doi: 10.1109/SP61157.2025.11097278.

### **2. Abstract of the original paper:**

This paper reports on a study exploring how two groups of individuals, legally blind (n=36) and sighted ones (n=36), react to aural telephone scam warnings in naturalistic settings. As spoofing a CallerID is trivial, communicating the context of an incoming call instead offers a better possibility to warn a receiver about a potential scam. Usually, such warnings are visual in nature and fail to cater to users with visual disabilities. To address this exclusion, we developed an aural variant of telephone scam warnings and tested them in three conditions: baseline (no warning), short warning, and contextual warning that preceded the scam's content. We tested the two most common scam scenarios: fraud (interest rate reduction) and identity theft (social security number) by coldcalling participants and recording their actions, and debriefing and obtaining consent afterward. Only two participants "pressed one" as the scam demanded, both from the legally blind group that heard the contextual warning for the social security scenario. Upon close inspection, we learned that one of them did so because of accessibility issues with their screen reader and the other did so intentionally because the warning convinced them to waste the scammer's time, so they don't scam vulnerable people. Both the legally blind and sighted participants found the contextual warnings as powerful usable security cues that, together with STIR/SHAKEN indicators like Scam Likely, would provide robust protection against any type of scam. We also discussed the potential privacy implications of the contextual warnings and collected recommendations for useably accessible implementation.

### **3. Link/DOI to the published paper:**

Link: <https://ieeexplore.ieee.org/document/11097278>

DOI: [10.1109/SP61157.2025.11097278](https://doi.org/10.1109/SP61157.2025.11097278)

# (Blind) Users Really Do Heed Aural Telephone Scam Warnings

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Because Caller ID spoofing is trivial, conveying contextual information about incoming calls can better warn users about potential scams. Most scam warnings are visual and exclude users with visual disabilities. We developed and evaluated an aural warning system. Both legally blind and sighted participants found contextual aural warnings to be effective security cues that complement STIR/SHAKEN.

## T Telephone Scams

*Imposter Scams*

## W Scam Warnings

*Scam Likely, Content Inference*



**S** This call is likely a scam. Hang up immediately, otherwise, proceed with caution.

**L1** This call is likely a scam. Banks will never time pressure you to make any change to your account over the phone. Hang up immediately, otherwise, proceed with caution.

**L2** This call is likely a scam. Government agencies will never ask about your Social Security number or discuss legal matters over the phone. Hang up immediately, otherwise, proceed with caution.

## IR Interest Rate Reduction

Thanks to your good payment history and good credit score, you have been qualified finally for interest rate reduction between 0 to 5%. Several attempts were made to reach you. This is your final courtesy call before we are unable to lower your interest rates, so press one now.

## SS Social Security Fraud

We are calling you from the Department of Social Security Administration. The reason that you received this phone call from our department is to inform you that there is a legal enforcement action filed on your Social Security number for fraudulent activity, so when you get this message, kindly press one to connect with the next available officer.

## RQ1 Cold-call Response

A cold-call response of (a) legally blind vs (b) sighted people of either (i) interest rate reduction or (ii) Social Security fraud scam call, in three conditions: 1 without a warning (baseline), 2 with a short aural warning, 3 with a contextual aural warning



### An A.I. Granny Is Phone Scammers' Worst Nightmare

Daisy Harris, an A.I.-generated English granny, has been stymying scammers with meandering, time-wasting conversations. But can she actually make a dent in the flood of fraud?

**Mishap** → PB18<sub>FC</sub>  
"voice-over mis-navigation"

**Intentional** → PB9<sub>FC</sub>  
"Someone was trying to stop me from pressing, you know, button number one (the warning). But I thought, I'm going to press it, I'm going to keep the person on the phone because if they're talking to me, they're not talking to some poor little old lady down the street who's going to give them their Social Security number"



### A Blind Person Is Phone Scammers' Worst Nightmare

A blind person from the US has been stymying scammers with meandering, time-wasting conversations. But can this person actually make a dent in the flood of fraud?

## RQ2 Response and Cues

**Narrow** → PB25<sub>FC</sub>  
"Usually, you can tell if there's a long delay before someone starts talking when you pick up."

**Broader** → PB16<sub>IB</sub>  
"One that always gets me, because I'm blind, there would be no need for me to have car insurance"

## RQ4 Privacy Concerns

**Privacy First** → PB17<sub>IB</sub>  
"It's neither legal nor preferred for one to listen to protected calls with clients."

**Safeguards** → PB21<sub>IB</sub>  
"will be just another part of [their] data to be collected."

## RQ3 Usability of Warnings

**Aural** → PB24<sub>FC</sub>  
"Comes close to the heart to blind people whose livelihood largely depends on Social Security benefits."

**Visual** → PS34<sub>FB</sub>  
"It's right there in red and grabs your attention right away."

## RQ4 Design Input

**Broad Accessibility** → PB11<sub>IS</sub>  
"To be able to select a language for the aural warning, e.g., Spanish."

**Effort saving** → PS39<sub>FB</sub>  
"convenience of not having to listen to the conversation."