Voice assistants may fail to understand user's intention, and mistakenly invoke wrong skills.

### Voice Squatting Attack

Voice assistants work like a relay, proxying and translating conversation between users and skills.

**System Mechanism**

Voice assistants may fail to understand user's intention, and mistakenly invoke wrong skills.

**Attack Demonstrations**

- **Voice Squatting through invocation name extending**
  - Alexa, ask PayPal to send 10 dollars to Sam
  - Alexa, ask PayPal to send 10 dollars to Sam
  - Alexa, ask PayPal to send 10 dollars to Sam

- **Voice Squatting through similar pronunciation**
  - Alexa, ask PayPal to send 10 dollars to Sam
  - Alexa, ask PayPal to send 10 dollars to Sam
  - Alexa, ask PayPal to send 10 dollars to Sam

### Measurements: Error-Prone AIs

<table>
<thead>
<tr>
<th>Voice Assistant Platform</th>
<th>TTS Services</th>
<th>Human Subjects &amp; TTS Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexa</td>
<td>10/17</td>
<td>12/17</td>
</tr>
<tr>
<td>Google</td>
<td>2/4</td>
<td>4/7</td>
</tr>
</tbody>
</table>

**Measurements: Conflicting Skills**

- 19% (3718) skills: same pronunciation
- 2.7% (531) skills: same pronunciation, but different spelling
- 1.8% (345) skills: longest prefix matching

**Interesting cases**

- Both “SCUBA Diving Trivia” and “Soccer Geek”, registered “space geek” as invocation names.