

UbiComp 2020 (Poster)

IMception: Camouflaging sensitive-apps' chat-screens with Deceptive UIs



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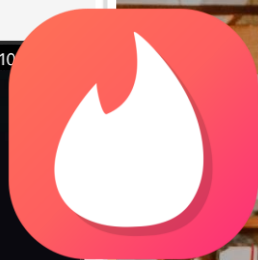
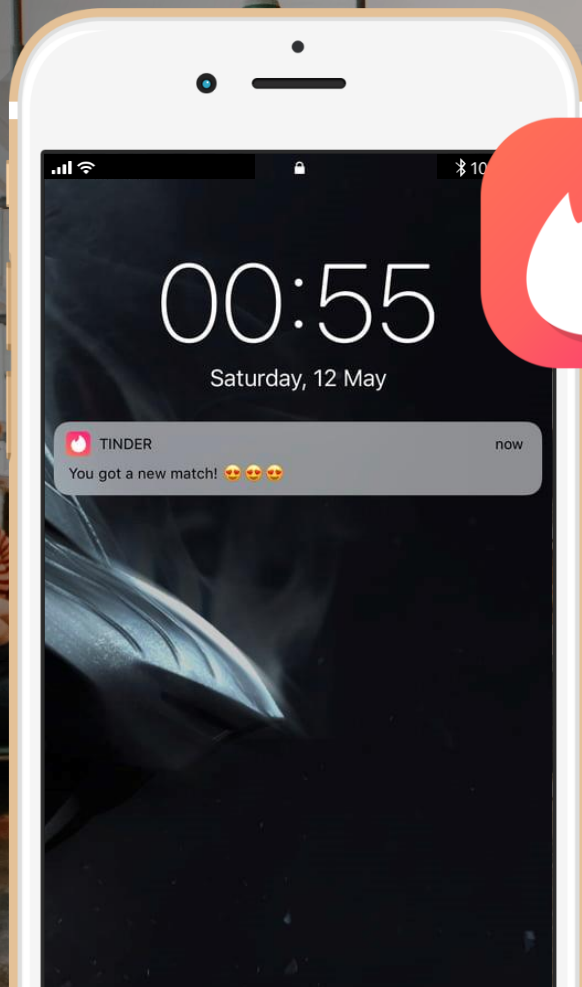
KAIST



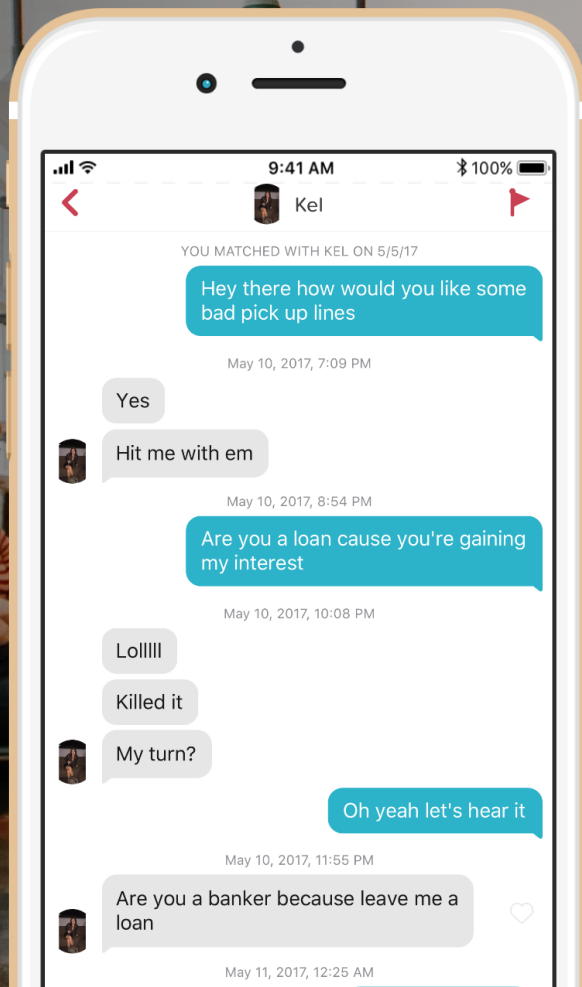
KOREATECH

*Hi! I am Phoebe,
an elementary school
teacher who just
started my career.*

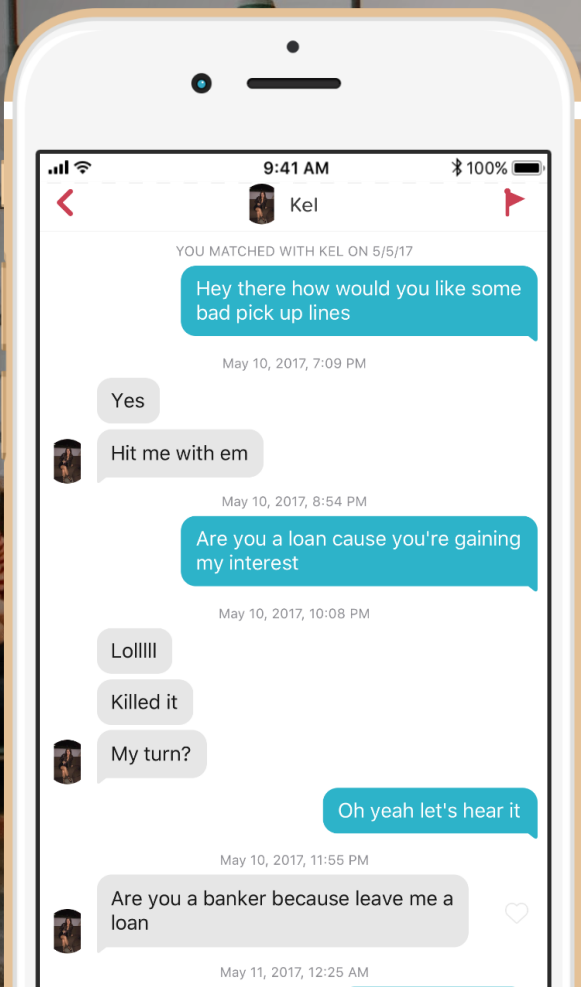




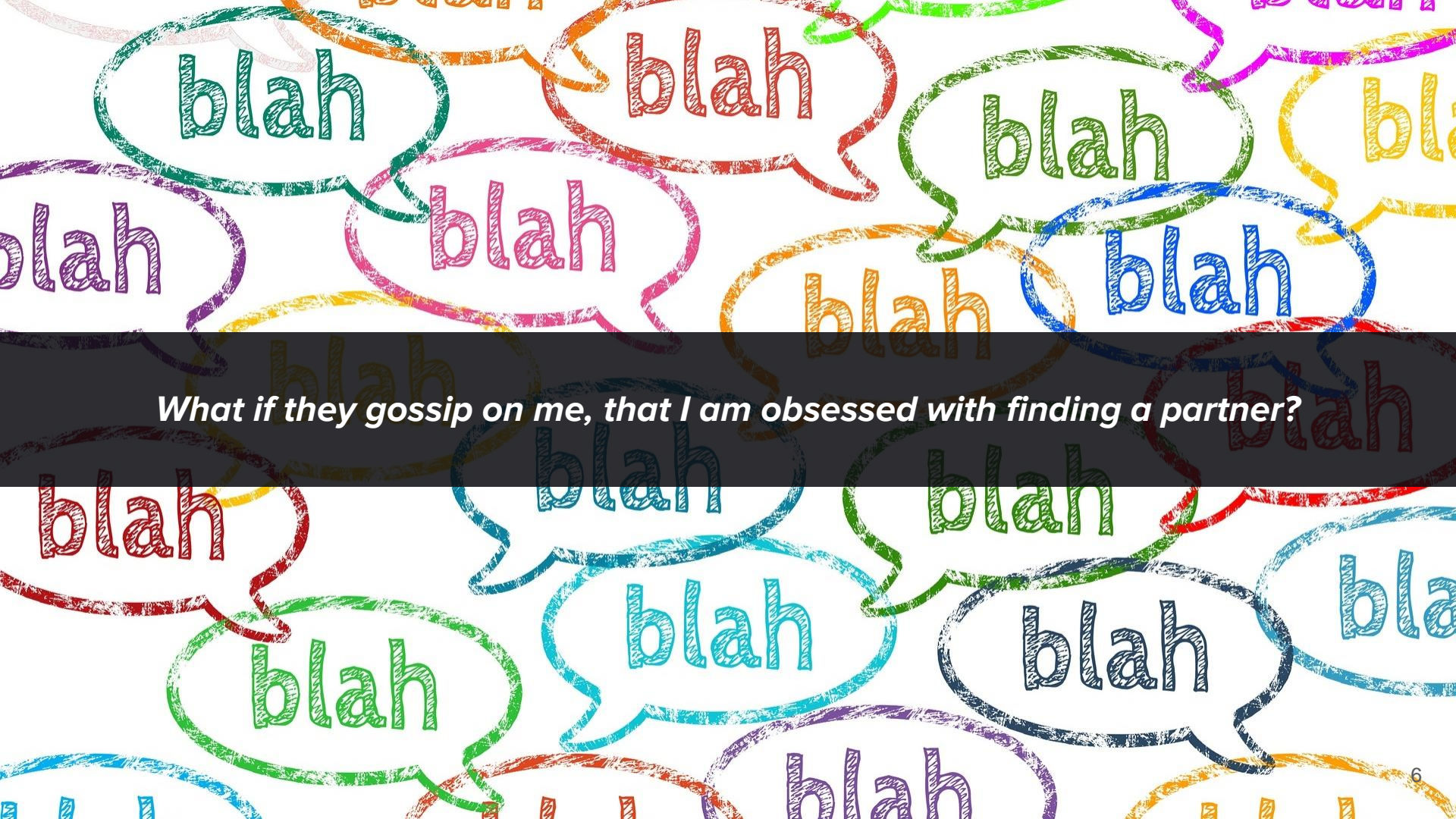
I joined Tinder looking for a possible match, but I am not comfortable to use it under a potential presence of my colleagues



I joined Tinder looking for a possible match, but I am not comfortable to use it under a potential presence of my colleagues



I joined Tinder looking for a possible match, but I am not comfortable to use it under a potential presence of my colleagues



What if they gossip on me, that I am obsessed with finding a partner?

Problem

- People often feel **uncomfortable** while interacting with privacy-sensitive apps in public places.
- Example of **privacy-sensitive apps**: Dating apps and counselling apps
 - Messaging on these apps requires urgent reply.
e.g., I got a message from my ideal type, and I don't want to miss the chance!
- **Public places** where you can come across
 - people whose opinion may affect your life. ⇒ Your supervisor
 - people whose opinion you care about. ⇒ Your friends

Solution Approach

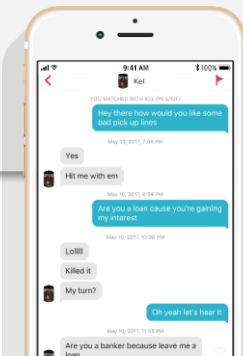
- Camouflaging privacy-sensitive apps' UI with popular apps' UI

Our target

[Threat A]

Acquaintances may notice the privacy-sensitive apps **by their appearance (UI)**

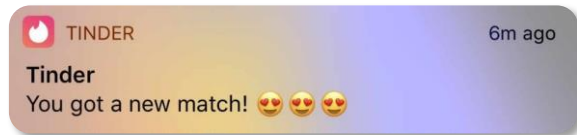
E.g., screen layout, etc.



[Threat B]

Acquaintances may notice the privacy-sensitive apps **based on their content**

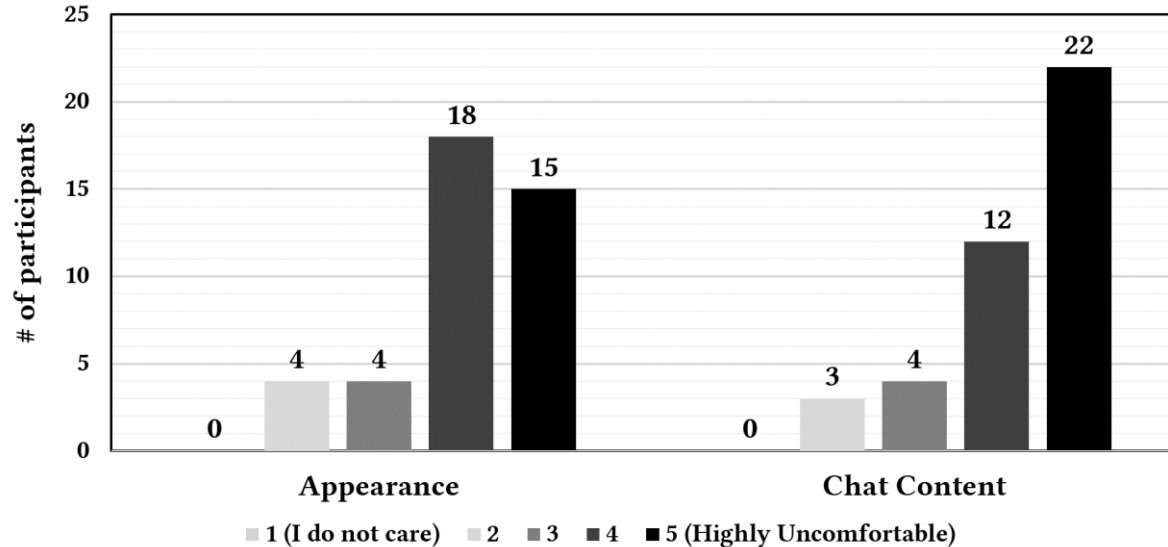
E.g., message content, etc.



Motivational Study

- Key result:

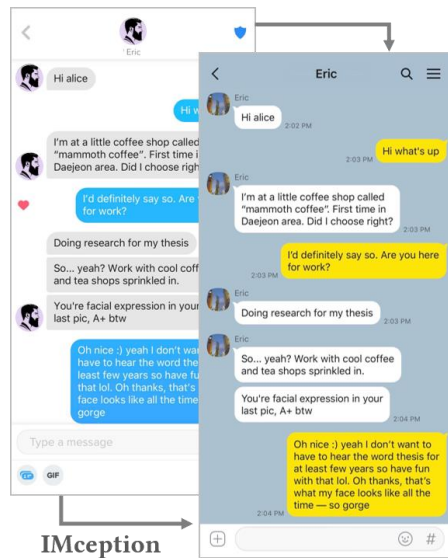
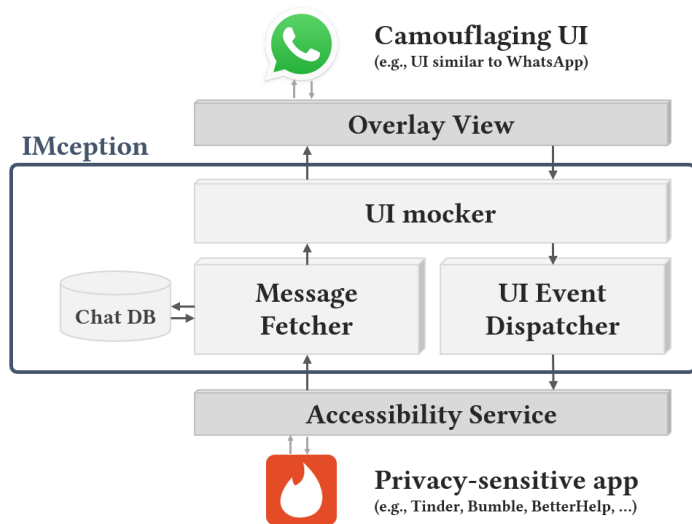
- People are not only uncomfortable about the content **but also the appearance (UI) of the app**



Design: IMception

Camouflaging privacy-sensitive apps' messenger UI with a popular chat app

i.e., Tinder's messenger feature \Rightarrow whatsapp's messenger feature



Benefits of the design

- Provides deception
 - IMception deceives the shoulder-surfers while users interacting with privacy-sensitive apps
- Preserves usability
 - Preserve chatting experience
- Works without privacy-sensitive app developers' support
 - Doesn't require app modification

Conclusion

- Main contribution

- Through the survey, we find that people have privacy concerns with not only sensitive app's content **but also the app's appearance**.
 - Previous works on shoulder surfing mostly covered apps' content.
 - For example, HideScreen[1] tried to hide PIN code from shoulder-surfer.
- We propose **the design of IMception**, which is built on the concept of **camouflaging**.

- Future work

- Camouflage image/video content
- Real-world deployment of IMception